PROJECT DOCUMENT
FAO/GLOBAL ENVIRONMENT FACILITY

PROJECT TITLE: Strengthening governance for biodiversity protection by formulating and implementing the National Strategy on Invasive Alien Species (IAS)(NSIAS) **PROJECT NUMBER:** (GCP/ARG/023/GFF)	
Recipient Country: Argentina	
Financing Partner: Global Environment Facility (GEF)	
FAO Project ID: 615690	**GEF Project ID:** 4768
Executing Institution: Environment and Sustainable Development Secretariat (SAyDS)	
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Contribution to the FAO Strategic Framework	**a. Strategic Objective / Achievement of organizational results:** SO2, Result 201, Output 20102 **b. Outcome / Regional Priority Area:** SO2, Result 201, Output 20102 – Peasant families and rural territorial development **c. Outcome of Country Programme Framework:** Thematic Area C, line of work 4
GEF Focal Area: Biodiversity	
GEF strategic objectives: BD-2	
Environmental Impact Assessment Category (insert √): A B C √	

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Environment and Sustainable Development Secretariat (SAyDS)	USD 2 375 000
National Scientific and Technical Research Council (COINCET)	USD 803 682
National Institute of Agricultural Technology (INTA)	USD 83 000
National Animal Health and Agri-Food Quality Service (SENASA)	USD 176 900
Public Communication Secretariat (CUDAP)	USD 8 417 774
National Parks Administration (APN)	USD 335 588
Argentine Coast Guard - Environmental Protection Directorate (PNA)	USD 294 118
Provincial Governments	USD 5 511 839
FAO	USD 250 000
Co-financing Subtotal:	USD 18 247 901
Total Budget:	**USD 22 117 901**

EXECUTIVE SUMMARY

Argentina has a rich biodiversity across 18 (eighteen) eco-regions, including Antarctica, tropical forests, steppe and mountain arid ecosystems, coastal marine environments and template grasslands, among others. The presence of Invasive Alien Species (IAS) introduced by forestry and agriculture, aquaculture, transport related to trade and tourism, import and breeding of pets, and import of ornamental species, is one of the most significant threats for biodiversity conservation, as well as for natural resources and related ecosystem services. Argentina's records (InBiAr – see section 1.1.1.a) document the presence of 652 species of alien plants, vertebrates, invertebrates, algae and fungus colonizing natural environments across all of the country's eco-regions. Although there is no global estimate regarding the impact of IAS on the Argentine economy, it is well known that many of these species have significant effects on native biodiversity as well as a serious socio-economic impact, which can be particularly intense and persistent on the vulnerable sectors of society. Therefore, many of the pests and weeds affecting agriculture in Argentina are alien species, most of them introduced by accident. The same happens with invasive plants which reduce the forage value of natural grasslands and with the deposit-feeder fauna species that eat grain and other feed products. Species like the Golden mussel (*Limnoperna fortunei*) are responsible for costly maintenance tasks in the turbines of the main hydropower plants in Argentina and South America; the didymo alga (*Didymosphenia geminata*), introduced in the rivers and lakes of the Argentine and Chilean Patagonia region threatens sports fishing, which is a key activity for the regional economies; the red-bellied tree squirrels (*Callosciurus erythraeus*) cause economic losses since they eat fruit, strip the bark from trees, break irrigation hoses and damage telephone, electricity and television cable coating and power transformers; the tamarisk or salt cedar (*Tamarix spp.*) has an impact on low-irrigation agriculture in dry-land areas, given its capacity to grow along river banks and dams where it consumes lots of water and salinizes the top layers of the soil; the giant African land snails (*Achatina fulica*) bring about very significant losses in agriculture, particularly in orchards, and mainly affect small farmers and subsistence farmers and threaten the population's health; the glossy privet (*Ligustrum lucidum*) colonizes native forests in the central and northern part of the country, and ends up by dominating the biological community and intensively affecting indigenous communities that depend on wildlife resources.

One of the threats affecting a unique ecosystem in the country is the presence of beavers (*Castor canadensis*) on the Tierra del Fuego Island where they were introduced in 1946, spread out quickly on this Argentine / Chilean island, and also recently colonized the Brunswick peninsula on mainland Chile. The current population of this species is estimated at around 100, 000 individuals. Beavers destroy trees by ringing them and flood Nothofagus forests, and also change the forest's nutrient dynamics. Furthermore, these animals have diminished the biomass and forest volume, particularly of those forest buffers linked to watercourses, an impact which is difficult to recover naturally. Beavers also have a serious impact on peat bog ecosystem services which play a significant role in regulating basins, supporting biodiversity and globally contributing to carbon sequestration.

Argentina has established guidelines for controlling IAS in its National Biological Diversity Strategy but lacks a National IAS Strategy, which affects its capability to manage the complexity inherent in IAS, and cuts across several sectors and geographic boundaries. While progress has been made in certain legal and regulatory instruments and in setting up a national database, there is no coordination whatsoever and no harmonization of such instruments among sectors and the national and provincial levels. Furthermore, knowledge on the IAS problem and the capacity to apply prevention and control instruments as regards introduction, early detection and immediate response actions, communication and awareness-raising, and prioritization and control and eradication of IAS already introduced and established in the country, are insufficient and weakly coordinated.

In response to this situation, the Environment and Sustainable Development Secretariat (SAyDS) request the support of FAO in accessing GEF funds for a project with the **global environmental objective** *to strengthened the governance framework across the country to allow for an effective protection of biodiversity against the impacts of Invasive Alien Species (IAS)*. Furthermore, its **development objective** is *to reinforce the current and future socio-economic benefits stemming from conservation and the sustainable use of biological diversity, including natural resources and ecosystem-based services, by appropriately managing the challenge of biological invasions*. With a view to achieving its objectives, the Project includes four technical components: 1. Strengthening institutional capacities at the national and

provincial levels for managing IAS; 2. Strengthening regulatory frameworks and funding mechanisms in support of the implementation of the National IAS Strategy; 3. Validation and implementation of protocols for controlling IAS, prioritized by taxonomic categories and ecosystems, included in the National IAS Strategy; and 4. Development of the Pilot Programme for eradication of the American beaver in Tierra del Fuego Province based on the governance of IAS.

Expected outcomes are as follows:

1.1: *Increased effectiveness for protecting biodiversity, sensitive ecosystems, health and the economy at the national level by managing the IAS problem*

Targets: a) coordinated risk analysis and border control mechanisms agreed upon and, after enactment of the pertinent regulations, 100% of requests for introducing IAS will have been duly analyzed by the system; b) early detection and immediate action systems implemented in at least 25% of the National Parks and in five provincial protected areas (PA) across the country, and at ports on the Atlantic coastline; c) IAS management strategies included in the annual operations plans (POAs) of at least 25% of the country's protected areas; and d) Score of 11/15 obtained in the GEF Tracking Tool (Part VI on IAS, questions 1,2, 4, 5)

2.1: *National and provincial Legal regulatory and financial frameworks harmonized and support an efficient implementation of the National IAS Strategy.*
Target: Score of 3/6 obtained in the GEF Tracking Tool (Part VI on IAS, question 3)

3.1: *Coastal and marine ecosystems protected against invasive alien species through early detection and rapid response measures.*
Target: score of 3/5 obtained in the GEF Tracking Tool (Part VI, question 5)

3.2: *Recovery in progress of ecosystems and biodiversity highly or potentially affected by six IAS, and risks for health and the forestry and farming sectors mitigated, by applying containment and/or eradication protocols.*
Targets: a) 3-6 containment, control or eradication protocols for IAS prove their effectiveness through ecosystem and biodiversity recovery indicators on xx hectares (baseline and target will be established in year 1); b) Score of 24/48 obtained in GEF Tracking Tool (Part VI, question 6); and c) adjustment of the National IAS Strategy and its implementation based on six reports on lessons learnt from pilot IAS control programmes.

4.1: *Native forest and peat bog ecosystems under effective control of the American beavers in Tierra del Fuego (TDF), and affected or endangered biodiversity in recovery.*
Targets: a) 121,280 hectares free from beavers; b) Benthic microhabitats in basin watercourses freed from beavers recovered to similar conditions as those watercourses not affected by beavers; c) Less organic matter in the sediments of watercourse beds in the basins freed from beavers; d) Streams in the Mimica River area and its surroundings recover their structure to become salmon spawning beds again; and e) Assisted recovery of *lenga* trees (Nothofagus pumilio), cherry trees and Antarctic beeches (Nothofagus Antarctica) in progress in areas affected but not flooded by beavers (Appendix 7.g)

4.2: *Bi-national beaver eradication programme in implementation (at least in the Argentine territory of Tierra del Fuego)*

Target: Bi-national beaver eradication programme in implementation within two to five years after completion of the pilot projects in each country.

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GLOSSARY OF ACRONYMS

ANA	National Customs Administration
APN	National Parks Administration
AS	Alien Species
ASADEP	Argentine Birds and Argentine Association of Landscape Ecology
AWP/B	Annual Work Plan and Budget
BRI	Biodiversity Recovery Indicators
CABA	Buenos Aires City
CBD	United Nations Convention on Biological Diversity
CC	Climate Change
CCP	Pilot Project Coordinating Committee
CD	Project Steering Committee
CENPAT	CONICET's National Centre for Patagonia
CEP	Project Executive Committee
CIEFAP	Centre for Research and Forest Extension in the Andean Patagonia region
CIN	National Inter-University Council
CNP	National Project Coordinator
COFEMA	Federal Environment Council
CONADIBIO	National Advisory Commission on the conservation and sustainable use of Biological Diversity
CONICET	National Scientific and Technical Research Council
CRUP	Council of Private University Presidents
CTNP	Project's National Technical Coordination Office
DFS	Wild Fauna Directorate, SAyDS
DIGMA	General Environment Directorate, Ministry of Foreign Affairs, Argentina
DNP	National Project Manager
DU	Demonstration Units for eradicating American Beavers
EBECPA	Bi-national Strategy for beaver eradication in Southern Patagonia
ECCP	Communication and Awareness-Raising Strategy of the National IAS Strategy
EIA	Environmental Impact Assessment
ENEEI	National Invasive Alien Species Strategy
FAO	Food and Agriculture Organization of the United Nations
FPMIS	Field Project Management Information System
GEB	Global Environmental Benefits
GEF	Global Environmental Facility
GoA	Argentine Government
GoP	Provincial Government
GPO	GEF Project Officer at FAO Office
IADIZA	Argentine Institute for Dryland Research
IAS	Invasive Alien Species
IFAD	International Fund for Agricultural Development
IFE	Independent Final Evaluation
IGN	National Geographic Institute
INTA	National Institute for Agricultural Technology
LoA	Letter of Agreement
LTO	FAO Lead Technical Officer
LTU	Lead Technical Unit
M&E	Monitoring and Evaluation
MAGyP	Ministry of Agriculture, Livestock and Fisheries
METT	Management Effectiveness Tracking Tool
MTE	Independent Mid-Term Evaluation
NBS	National Biodiversity Strategy
NGO	Non-Governmental Organization
NS	National Strategy
OED	FAO Office of Evaluation
PACB	Bi-national Adaptation Plan for Beaver Eradication

PEBEC	Bi-National Strategic Plan for Beaver Eradication
PES	Payment for Environmental Services
PIR	Annual Project Implementation Report
PNA	Argentine Coast Guard
PNTDF	Tierra del Fuego National Park
PPR	Project Progress Report
PRP	Person Responsible for Budget
PSA	Airport Security Police
RAJB	Argentine Network of Botanical Gardens
SAyDS	Environment and Sustainable Development Secretariat
SDSyA-TDF	Sustainable Development and Environment Secretariat - Tierra del Fuego
SENASA	National Animal Health and Agri-food Quality Service
SIFAP	Federal System of Protected Areas
STEEI	Technical Sub-Committee on Invasive Alien Species
TCI	Technical Cooperation Department, Investment Centre, FAO
TDF	Tierra del Fuego
TOR	Terms of Reference
UBA	*Universidad de Buenos Aires* (Buenos Aires University)
UNC-UNPSJB	*Universidad Nacional del Centro – Universidad Nacional de la Patagonia San Juan Bosco* (Universities)
USD	US dollars
AWP/B	Work Plan and detailed Annual Budget

SECTION 1 – RELEVANCE (Strategic fit and results orientation)

1.1 GENERAL CONTEXT

a) Development context related to IAS in Argentina

Argentina has a rich biodiversity in 18 (eighteen) different eco-regions, including the Antarctic environments, tropical forests, steppe and mountain arid ecosystems, coastal marine environments and template grasslands, among others. In view of its size, the country is the seventh largest in the world (2,791,810 km2[1], without considering Antarctica), and it has long land, river and maritime borders (a border of 9,376[2] km with 5 (five) countries and a river and maritime coastline linking the country to the River Plate and the Atlantic Ocean, which is 5,117 km long). There are 38 (thirty-eight) natural protected areas under national jurisdiction: National Parks, Strictly Natural Reserves and Natural Monuments, across a total area of 3,683,995 hectares. Furthermore, there is the Inter-jurisdictional Coastal Marine Park in South Patagonia (not surveyed) and the protected marine area of "Namuncurá – Burwood Bank" covering 34,000 km^2: and the 4,515-hectare National Pizarro Reserve which is currently being developed. If sub-national systems are also considered, there are over 338 Protected Areas, besides especially protected areas such as the Ramsar Sites.

The main threats for biodiversity in Argentina include the alteration, fragmentation and degradation of habitats. Some of the threats are related to productive activities and the effects of extraction or substitution, such as farming, forestry and mining. Others, which are more widely recognized as time goes by because of their severity[3], are related to the presence of Invasive Alien Species (IAS). The introduction of these species is linked to forestry and farming, aquaculture, tourism and production-related transport, and human activities, such as breeding of pets and flower/forest-based ornamentation.

The United Nations Convention on Biological Diversity (CBD) defines Invasive Alien Species (IAS) as those plants, animals or micro-organisms that are introduced voluntarily or accidentally outside their native home range, and that threaten ecosystems, habitats, or species, producing economic or environmental damages. This document recognizes that these species are "one of the main threats to biological diversity", and that "risks can grow due to an increase in world trade, transport, tourism and climate change". In Article 8 (h) of the Convention, the signatory countries undertake the commitment to "Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species".

Although there is no overall estimate on the impact of IAS on the Argentine economy, it is known that, apart from their effects on biodiversity, many of these species have a significant socio-economic impact, which can be particularly intensive and persistent as regards the vulnerable sectors of society[4]. Thus many pests and weeds affecting agricultural production in Argentina were accidentally or voluntarily introduced, and the same happens with invasive

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[1] Source IGN, Mainland: 2,791,810 km² (including the Malvinas Islands: 11,410 km²); Antarctica: 965,597 km² (including Orkney Islands: 750 km²); and the south Atlantic islands: 3.867 km² (South Georgia: 3,560 km² and South Sandwich 307 km²).

[2] Source: IGN (with: Brazil: 1.132 km; Bolivia: 742 km; Chile 5.308 km; Paraguay: 1.699 km; Uruguay: 495 km).

[3] Millennium Ecosystem Assessment

[4] Perrings C. 2005. The socioeconomic links between invasive alien species and poverty. Report to the Global Invasive Species Program. http://www.issg.org/pdf/publications/GISP/Resources/Perrings.pdf

plants that reduce forage value in natural grasslands, and with grain and other deposit feeder fauna species.

For instance, the golden mussel (*Limnoperna fortunei*), introduced in the River Plate Basin is responsible for costly maintenance tasks in industrial cooling systems, including the turbines of the main hydroelectric power plants in South America[5], and affects electricity generation and, therefore, industrial activities. The Didymo alga (*Didymosphenia geminata*), introduced in the rivers and lakes of the Argentine and Chilean Patagonia threatens sports fishing, a key activity for the regional economy, and has given rise in the last two years to an investment of over a million pesos (USD 126,000) in control actions in only one of the affected provinces. The red-bellied tree squirrel (*Callosciurus erythraeus*) brings about economic losses to landowners mainly because it eats fruit, strips the bark from trees, breaks irrigation hoses and damages telephone, electricity and television cable coating as well as electricity transformers. Tamarisks or salt cedars (*Tamarix spp.*), native of Europe and Asia and that were introduced because of their capacity to grow in very dry areas, have an impact on low-irrigation agriculture, because they grow along river banks and dams from which they evaporate a great amount of water into the atmosphere. The Giant African Snail (*Achatina fulica*), present in Brazil and detected in Puerto Iguazu, Misiones Province in 2010, is a voracious herbivore that brings about very significant losses in agricultural systems, particularly in orchards, and especially affects small producers and subsistence farmers.

Some IAS are also a risk to public health, such as the African snail that carries human meningitis, or the wild boar (*Sus scrofa*), widely present in Argentina, which acts as a host for nematodes responsible for trichinosis, and the tiger mosquito (*Aedes aegypti*), a vector of dengue fever.

There is not much knowledge and examples on the impact of IAS on the indigenous peoples in Argentina but one of them is the glossy privet (*Ligustrum lucidum*). It is a forest species that grows in the shade of native species. Furthermore, its fruit is spread out by birds and these two features turn it into a very successful invasive species. As it continues to invade, its young plants colonize the undergrowth and ultimately dominate the biological community thus impoverishing it and affecting not only diversity but also the communities that depend on wildlife, such as the Ocloya peoples in Jujuy Province, in the north of Argentina.

b) Current status and threats of IAS to globally important biodiversity and ecosystems, and main causes

The presence of alien species has been detected in Argentina. These species have a negative impact on biodiversity, and have economic and social implications, exerting pressure on native species that are endangered to a certain extent. Official records by project I3N (InBiAr – see Section 1.1.1.a) have registered wildlife populations for a total of 22 mammal species which were introduced because of their interest for hunting and fur farming, their ornamental value or their breeding for food, industrial or recreational purposes. It also includes information on 652 species of alien plants, vertebrates, invertebrates, algae and fungi which have been identified in 4500 places in wild or semi-wild environments in Argentina, and species that are raised in confinement (breeding farms, crops areas, zoos, botanical gardens) but that are considered invasive in other countries.

[5] Darrigran G. 2010. Summary of the distribution and impact of the golden mussel in Argentina and neighbouring countries. En: Mackie, G & R Claudi. Monitoring and Control of Macrofouling Molluscs in Freshwater Systems, CRC Press, Boca Raton, FL.

Several studies report on the impact of IAS on native biodiversity and how ecosystems operate in Argentina, and have assessed their impact as herbivores or predators, competitors, pathogens or transformers of full ecological systems. Regional workshops held to date as a part of the participatory process to formulate the preliminary version of the National Strategy on Invasive Alien Species (IAS), in the Centre of the country (Buenos Aires and Cordoba Provinces, and Buenos Aires City), Patagonia (provinces of La Pampa, Neuquén, Río Negro, Chubut, Santa Cruz and Tierra del Fuego), Northwest Argentina (Catamarca, Jujuy, Salta, La Rioja, Santiago del Estero, Tucumán) and Cuyo region (Mendoza, San Juan and San Luis), have led to setting up a list of species that technicians, researchers, and representatives from different public and private agencies, as well as non-governmental organizations, deem to be a priority for control actions. These lists so far include ninety-three species or groups of fungi, algae, plants, vertebrate and invertebrate species. Some of these IAS and their impact are summarized hereunder.

One of the IAS threats to unique ecosystems and the most significant biodiversity in the country is the beaver (*Castor canadensis*). It was introduced in Tierra del Fuego Island in 1946 and has quickly spread out on this Argentine island, in environments under national jurisdiction (Tierra del Fuego National Park – PNTF in its Spanish acronym), private land, natural protected areas under provincial jurisdiction, forest reserves, and has gone across to Chile, including Brunswick peninsula, on the country's mainland. For the whole of the Argentine-Chilean Tierra del Fuego (TDF), and based on studies shared by both countries, the total beaver population is currently estimated at 100,000. Beavers are "ecosystem engineers" because of the dams they build change the hydrology and sediment flow, and alter the chemistry of basin water. In South Patagonia, beavers destroy trees by ringing, and flood Nothofagus forests, and also change the forest nutrient dynamics[6]. Beavers have reduced forest biomass and volumes, particularly in those forests classified as buffer forests since they are linked to watercourses[7]. This impact is then difficult to recover in a natural manner. Studies in the Tierra del Fuego National Park (PNTF) on changes in the richness of forest undergrowth, cover and biomass in abandoned beaver dams in the case of *Nothofagus* river bank forests has shown that there is no tree re-generation in the dam areas, 20 years after they were abandoned by beavers[8]. Finally, beavers have a serious impact on ecosystem services in TDF peat bogs, which are very important given their usefulness in regulating basins, sustaining biodiversity and contributing to global carbon sequestration.

Along the Argentine coastline which is of very high value for the conservation of global biological diversity, at least 39 non-native marine species have been identified[9], most of which live along the Buenos Aires Province and Northern Patagonia coast. Four of these species were intentionally introduced for their exploitation (the Japanese oyster and three fish species).

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6 Alterations in the nutrient cycle include greater amounts of organic carbon, nitrogen and phosphorus, and inorganic nitrogen in the sediments of areas with beavers, compared to those sites without beavers, as well as greater concentrations of nitrite, nitrate and potassium in beaver dam water (Lizarralde et al., 1996)

7 A recent study carried out on the Navarino Island coastline habitat, in Chile, showed that beavers and their activities significantly reduce tree cover up to 30 meters away from streams, essentially eliminating river bank forests. The tree seed bank reduced its size and its specific seedling composition was changed by suppressing the *Nothofagus betuloides* and *Nothofagus pumilio*, but allowing the growth of the *Nothofagus antárctica (*Anderson et al., 2006[a])

8 The main outcomes of the study were that beavers alter vegetation, modify the biomass and composition of original forests. Specific richness, cover and biomass were significantly modified if compared to the original undergrowth. Ferns were the most affected group since their area of coverage was reduced as well as their contribution to the total biomass in the affected areas, compared to the values recorded in primary forests. On the other hand, grasslands are more abundant in beaver-affected areas. Many species that grow in the beaver-affected sectors do not grow in primary forests. The affected areas addressed in the study had no forest re-generation. (Martínez Pastur et al. 2006)

9 *Evaluación Nacional de Situación en Materia del Agua de Lastre en el Litoral Marino y Fluvial, Argentina*. Schwindt, Darrigran, Repizo.

Around 45% of the reported species are found at the ports, and 10-20% in estuaries and intertidal rocky shores[10]. Involuntary introductions have taken place through ballast water or vessel hull fouling. In all cases they generate a negative impact on biodiversity, with economic and social implications and pressure on native species.

The red-bellied tree squirrel (*Callosciurus erythraeus*), five of which were released in Buenos Aires Province for ornamental purposes, has now invaded over 1300 km^2 [11], and can act as a predator of wild bird eggs. From the standpoint of conservation, the main threat related to the progress of this species is linked to the possibility of it reaching out to forests and jungles in Northeast Argentina, and the gallery forests that come as far as Buenos Aires Province, which are one of the most important biodiversity reservoirs in the country and are the natural habitat for the Misiones squirrel, the *Sciurus aestuans*[12]. Furthermore, once these environments have been colonized there would be no natural containment to prevent it from moving north, reaching out to mega-diverse areas such as the Atlantic Shrubs and the Amazon Jungle, which could entail a significant threat to globally important biodiversity. One of the main limitations for its expansion is that the first invasion nuclei are located in the Pampa region, where the absence of forest ecosystems has halted the expansion of this species. Squirrels have moved around harnessing forest plantations, lines of trees along the side of roads and highways, and cable grids. Anyhow, the main dispersal vector has been the voluntary moving of squirrels as pets or ornamental animals. Therefore, in 1999-2000, 30 squirrels were released in the gardens of a hotel in La Cumbrecita, Cordoba province, and eight squirrels on a farm in Cañada de Gómez, Santa Fe Province.

One of the main threats for biodiversity conservation in dry ecosystems are tamarisks or salt cedars (*Tamarix* spp.), which threaten National Parks and other places renowned for their importance in the conservation of globally significant biodiversity. Tamarisks causes changes in fire frequency and intensity and alteration of hydrological processes, because of their highly competitiveness in accessing and sucking up groundwater resources.

As regards the effect of invasive species as pathogens of wildlife, it is worth highlighting the impact of the Chytrid fungus (*Batrachochytrium dendrobatidis*) which affects the skin of different amphibian species. The vector is the American bullfrog (*Lithobates catesbeianus*), a native anoure of North America. Since it is an aquaculture bred species because of its meat, it was introduced in several South American, European and Asian countries, and has become an invasive species in over forty countries and four continents. It is classified by IUCN among the 100 most harmful invasive alien species worldwide. It was mentioned for the first time in Argentina in 2002 and, since then, over ten naturally occurring populations have been reported in at least six provinces. It is a harmful species for native biodiversity since it is a predator feeding on native amphibian species in wetlands ecosystems. It has ~~it is a general predator with~~ unique biological characteristics: big sized adults, high reproductive potential, larvae producing toxic secretions and, therefore, they have no natural predators in the Argentinean ecosystem. In Argentina it has affected populations of 16 species of native amphibians distributed across seven of the twenty-three provinces. Several of the affected species have

[10] Schwindt 2008

[11] Guichón, ML & Doncaster, CP. 2008. Invasion dynamics of an introduced squirrel in Argentina. Ecography, 31, 211–220.

[12] Cassini G y ML Guichón. 2009. Variaciones morfológicas y diagnosis de la ardilla de vientre rojo, *Callosciurus erythraeus* (Pallas, 1779), en Argentina. Mastozoología Neotropical, 16: 39–47.

been classified as vulnerable and thus the fungus transmitted by the American bullfrog is yet another factor conditioning their survival[13].

Climate change acts in synergy with biological invasions[14]. On the one hand, changes in rainfall and temperature allow the IAS to spread out and colonize new ecosystems, even those species that have never before expressed their invasive capacity. This situation can be particularly significant in countries like Argentina that has huge arid or semi-arid ecosystems, and where an increase in CO_2 could increase efficiency in the use of water invasive plants, thus augmenting their capacity to settle and expand. The environmental stress resulting from climate change can also reduce the resilience of natural ecosystems, increasing their vulnerability to invasions; and, similarly, alterations in the frequency and intensity of disturbances (floods, fires, strong storms) provide the opportunity for new IAS to establish themselves. Dispersal pathways and vectors can change in view of the direct effects of climate change (for instance, based on changes in marine currents, the speed and/or direction of prevailing winds, flood frequency) and of the indirect effects related to changes in land use patterns among the inhabitants.

c) Legal and institutional framework

The Argentine Republic has a federal framework, which entails provincial autonomy. The National Constitution, on the one hand, states that the provinces have all the authority not explicitly delegated to the National Government (Article 121). Likewise, the provinces hold ownership over the natural resources of their territories (Article 124) and, finally, it indicates that the National Government shall issue all minimum standards for environmental protection, without altering local jurisdictions, while the provinces shall supplement such regulations (Article 41). The laws on minimum environmental standards have been drafted within this framework and are basically structured through General Environment Law No. 25,675 which sets forth the standards that must govern across the whole of the country. The Environment and Sustainable Development Secretariat (SAyDS) is the authority responsible for environmental matters at the national level. Each province has its own environment authority.

Although Argentina lacks a National IAS Strategy, it has established guidelines for invasive alien species in its National Biodiversity Strategy (NBS, 2003), created through Resolution 91/03. Thus it includes within its field of action on *Biological Diversity and agro-ecosystems,* Objective 1, item 1.3. *Environmental impact assessment and control on the introduction and management of alien species and genetically modified organisms, avoiding the involuntary introduction of undesirable organisms (weeds, pathogens) and trying to minimize the risks related to human health and genetic pollution and/or ecological displacement of local species and eco-types.*

In 1994, Argentina ratified the United Nations CBD through Law 24,375. Later, by Decree 1,347/1997 regulating the law, the country adopted the CBD and created the national advisory committee for the sustainable use and conservation of biological diversity, CONADIBIO. This commission, coordinated by SAyDS, includes representatives from provincial governments and public and private agencies at the national level, and addresses policies to review and implement the National Biodiversity Strategy. It includes a technical sub-committee for IAS,

[13] Ghirardi, R. 2012. Estudio de quitridiomicosis por *Batrachochytrium dendrobatidis* en anfibios anuros del Litoral, Cuyo y Patagonia Argentina Tesis de Doctor en Ciencias Naturales (PhD thesis). Universidad Nacional de La Plata. 195 pp.

[14] Invasive Species in a Changing World. Mooney H.A. & R.J. Hobbs (eds.) 2000. Island Press, Washington.

which is a Federal and Inter-institutional Consultation Mechanism on IAS, and promotes a coordinated vision of the problem, aimed at optimizing processes and facilitating the building of new notions based on scientific knowledge and existing prevention, dissemination, control and management structures.

In the case of Argentine wild fauna, the prevention of invasions was initially envisaged by Law 22,421 on fauna conservation indicating that "*the National Enforcement Authority can ban imports, introduction and establishment of live specimens, sperm, embryos, eggs for incubation and larvae of any species that can alter ecological balance, affect economic activities or the fulfillment of the purposes of this law*". Its Regulatory Decree No. 691/81, section 116, provided for the prior authorization of the Enforcement Authority for importing live wild fauna animals.

Regulation 376/97 of the National Secretariat for Natural Resources and Sustainable Development regulates the introduction of specimens of a new alien species in the country, for whichever reason or use, stating that "*it must always be preceded by an Environmental Impact Assessment (EIA)*". The Wild Fauna Directorate is in charge of evaluating requests for introducing an alien species of wild fauna, based on consultations with academic experts, although so far there is no specific system for assessing risk.

Within the Region's integration context, it is particularly important for Argentina to be able to address trans-border matters that are very current in IAS issues, with MERCOSUR (Southern Common Market[15]), Ad-hoc Group on Biodiversity, through Sub-working Group No. 6 on the Environment (SWG No. 6)[16], and through the latter, with UNASUR[17] and CELAC[18]. In Latin America, Uruguay[19], Brazil, Colombia and Mexico have their National IAS Strategies. Two are Argentina's neighbouring countries.

In order to address the problem of beaver invasion, in 2005, Ministry of Production Resolution M.P. No. 521/05, declared beavers a harmful species for all productive activities, and by Provincial Law No. 696, enacted in 2006, the *Castor Canadensis* was declared to be "a harmful and detrimental species" in the whole of Tierra del Fuego Province, Antarctica and South Atlantic Islands. In 2006 an agreement was reached on a "*Bi-national Strategy for eradicating beavers from Southern Patagonia*" (EBECPA in the Spanish acronym), to work jointly on the topic, based on the preparation of a bi-national eradication project and, in 2008, a specific bi-national agreement was signed "*Bi-national Agreement between the Argentine Republic and the Republic of Chile on Restoring the Southern Ecosystems affected by the American Beaver (Castor canadensis)*" (hereinafter "the Bi-national Agreement")[20]. Common objectives relate to the restoration of the Sub-Antarctic ecosystems affected by beavers. Both countries have worked together in developing a bi-national eradication programme, with the overall objective of eradicating beavers on seven million hectares and 27,000 km of rivers, with the expectation of avoiding its dissemination across the mainland.

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15 Including Argentina, Brazil, Uruguay, Paraguay, Venezuela and Bolivia, and as associate countries, Chile, Colombia, Peru, Ecuador, Guyana and Suriname.

16 Created by the Common Market Group in 1995 (Res. No. 20/95). Its general objective is to guarantee the protection and integrity of the States Parties environment.

17 Union of South American Nations made up of Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela.

18 Community of Latin American and Caribbean States comprising all Latin American and Caribbean countries.

19 At an incipient stage.

20 Within the framework of an Environment Treaty between the Argentine Republic and the Republic of Chile (1991)

The country supports the global ballast water management programme known as GloBallast, started up with funds from the Global Environmental Facility (GEF), United Nations Environment Fund (UNEP) and International Maritime Organization (IMO)[21]. Within the framework of this project, a list of specialists in the taxonomy of the groups of organisms that can be carried by ballast water was drawn up[22], and a working group in the matter was set up at the national level[23]. The Argentine Coast Guard (PNA), in its capacity as environmental oversight agency at sea and in mainland freshwater, has issued two ordinances to regulate the management of ballast water[24]. These rules force vessels heading for the country to change ballast water out in the open sea, no les than one hundred and fifty nautical miles from the River Plate area and other areas to which the agency wishes to grant special protection.

1.1.1 Rationale

a) Baseline initiatives, programmes/projects and investments for the next 3-5 to address the threats and impacts of IAS on globally important biodiversity and ecosystems

IAS studies, database and information systems

The Argentine Republic has a wealth of information with regard to the presence of invasive alien species in natural ecosystems. In some taxonomic groups, such as vascular plants, much of this information is backed by plant collections which help to validate assessments and carry out a historical analysis of introduction pathways and spread trends.

As from 2002 the country has had a national database on biological invasions (InBiAr)[25], within the structure of IABIN (Inter-American Biodiversity Information Network), coordinated by the *Universidad Nacional del Sur*, in cooperation with the *Centro Nacional Patagónico* (National Patagonian Centre -CENPAT-CONICET) and the National Parks Administration (APN). It follows standards compatible with similar information storage systems operating in the remaining countries of the Americas, and with other international initiatives, including the Global Invasive Species Database (GISD), of the IUCN Invasive Species Specialist Group (ISSG)[26], the initiative of the Global Invasive Species Information Network (GISIN)[27] and the Global Invasive Alien Species Information Partnership (GIASIP)[28].

Each species is linked to one or more known sites of IAS occurrence in the country, totaling 4,500 places, and to information on the reasons for its introduction, which clearly show a prevalence of voluntary introductions for plants and vertebrates, and the related productive activities. Furthermore, the database includes information on 60 projects studying invasive alien species in Argentina.

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[21] http://globallast.imo.org/

[22] http://www.ambiente.gov.ar/?idarticulo=10682

[23] http://www.ambiente.gov.ar/?IdArticulo=9328

[24] Ordinance No. 7/98, DPMA - Volume 6, "*Régimen para la protección del medio ambiente , prevención de la contaminación con organismos acuáticos en el lastre de los buques destinados a puertos argentinos de la cuenca del Plata*" (Regime for protecting the environment, preventing pollution with aquatic organisms present in the ballast water of vessels traveling to Argentine ports in the River Plate basin) and Ordinance No. 12/98, DPMA – Volume 6 "*Designación de zonas de protección espacial en el litoral argentino*" (Designation of areas to be especially protected along the Argentine coastline). http://www.prefecturanaval.gov.ar/web/es/html/dpma_agua_de_lastre.php

[25] www.inbiar.org.ar

[26] http://www.issg.org/database/welcome/

[27] http://www.gisin.org/DH.php?WC=/WS/GISIN/home.html&WebSiteID=4

[28] http://giasipartnership.myspecies.info/

The Biodiversity Information System (SIB by its Spanish acronym)[29], of the National Parks Administration manages information on over 30,000 species present in the protected areas in Argentina under federal jurisdiction, including alien species.

The Biodiversity Research Group, a body within the Argentine Dryland Research Institute (IADIZA-CONICET), located in Mendoza Province, has a research line focused on invasive mammals, with information on 18 species introduced in Argentina[30], which were able to establish self-sustainable populations in nature and have different effects on native biological diversity[31].

There are also updated information sources specifically regarding the geographic distribution of freshwater fish, both native and non-native[32]. Data include systematic information fact sheets and maps with records on occurrence. Similar data are compiled and maintained by the Inter-jurisdictional Basin Authority (AIC) for the Neuquen, Limay and Negro Rivers[33] on other freshwater IAS in the rivers of northern Patagonia.

In order to analyze information using databases and geographic information systems (GIS), SAyDS has an important installed capacity at the Native Forest Directorate, National Fire Management Plan, Working Group on Aquatic Resources, Territorial Governance Directorate, Federal Protected Area System (SIFAP), National Biodiversity Observatory (OBIO), which is a part of the National Geography Institute, and the National Observatory on Land Degradation and Desertification. There is also the capacity and ongoing activities for GIS development at the National Institute for Agricultural Technology (INTA), National Scientific and Technical Research Council (CONICET), Universities, and in the provinces (Forest, Natural Resources, Statistics and Censuses areas, etc.) which can be important to reinforce the National IAS Strategy. Many national and provincial agencies are brought together through the project "Spatial Data Infrastructure in Argentina" (IDERA). The Basin Committees have their own GIS. For instance, AIC also has a GIS which is especially useful in the case of didymo algae.

Finally, the Integrated Agriculture Information System (SIIA by its Spanish acronym) is a national project under the Provincial Agricultural Services Programme (PROSAP). The project is financed with Inter-American Development Bank (IDB) and National Government funds. Its main purpose is to survey, process, disseminate and analyze information based on the consolidation of technical infrastructure, the availability of homogeneous, approved IT systems and the adoption of GIS, all of the above coordinated by the Agriculture and Forestry Information Directorate, which has a network of 42 offices across the country.

Considering these baseline activities and investments in GIS and information on IAS in Argentina, in the next four years CONICET will contribute USD 116,082 to the project as co-financing to collect data on IAS and upload them into the database, and to have experts participate in workshops on IAS information integration and accessibility. SAyDS will provide USD 65,543 to finance the entry of IAS data into the database (InBiAr), maintenance

29 www.sib.gov.ar

30 Novillo, A & RA Ojeda. 2008. The exotic mammals of Argentina. Biological Invasions, 10(8): 1333-1344.

31 http://wiki.mendoza-conicet.gob.ar/images/8/81/ATLAS_ALARM_OJEDA_et_al_2009.pdf

32 Liotta, J. 2005. Distribución geográfica de los peces de aguas continentales de la República Argentina. ProBiota Serie Documentos, 3. SAGPyA, Buenos Aires, Argentina, 701 pp.

33 http://www.aic.gob.ar/aic/default.aspx#v

of the webpage and organization and participation in workshops on IAS information integration, including prior analyses of available data and information. The Sustainable Development and Environment Secretariat, Tierra del Fuego Province (SDSyA-TDF) will provide information and experiences on beaver control for a total amount of USD 20,000. INTA, SENASA and PNA will provide experts to participate in the workshops for a total amount of 17,000. Finally, APN will spend USD 3,000 on collecting IAS data in National Parks and entering them into InBiAr.

Formulation and implementation of the National IAS Strategy, including prevention, early detection, control, and eradication, and of the related communication strategy.

Argentina has certain prevention and control instruments only in some environments but which lack coordination. Official agencies such as the National Animal Health and Agri-food Quality Service (SENASA) currently carry out prevention tasks as regards the introduction of risky species, particularly organisms that are a threat to agriculture and livestock. Furthermore, it has wide experience in early detection systems to identify insect population growth that can become a pest for agriculture. The structure of this and other control agencies (Airport Security Police, Customs, Zoo-phytosanitary Barriers) represent available capacity to potentially enhance the influence of these agencies on the problem of introducing species that can place biodiversity conservation at risk.

In 2011, information was surveyed on invasive animal species within the framework of the Wild Fauna Directorate, SAyDS[34]. As part of the efforts to review existing surveys and based on the opinion of experts, a preliminary list was prepared of species already introduced in our country, which were classified according to the invasion status and the measures that seem most appropriate for managing such situation (control, mitigation of effects or eradication). The list includes 26 species of mammals, 24 species of mollusks, four reptiles and one amphibian.

At the international level, the World Organization for Animal Health (OIE) also drafts guidelines and frameworks of action for minimizing the risk of pathogen transmission in the international trade of animals and by-products[35]. In February 2012, this organization published a series of guidelines to assess the risk posed by non-native animals[36]. At the national level it coordinates actions with SENASA. More specifically, in the case of IAS, SENASA was consulted by OIE for updating the new chapters on risk assessment of invasive alien species.

In order to strengthen and increase the baseline by coordinating instruments for prevention, early detection, control and eradication under a National IAS Strategy, SAyDS will provide USD 484,407, in the next few years. These resources will cover the expenses of providing experts for multi-sectoral workshops to agree on an IAS category-based list as a basis for regulating their use, analyzing data, providing technical inputs and participating in the STEEI Technical Sub-committee meetings at CONADIBIO for formulating all components of the National IAS Strategy. Likewise, SDSyA-TDF will provide experiences, good practices and lessons learnt for the formulation of the National IAS Strategy, and communication and

34 National Coordination Office for Studies and Projects on Wild Fauna Invasive Alien Species

35 http://www.oie.int/

36 http://www.oie.int/fileadmin/Home/esp/Our_scientific_expertise/docs/pdf/OIEDirectrices_AnimalesNonNativos_2012.pdf

dissemination material on the American Beaver for a total amount of USD 220,000. CONICET will provide technical assistance (USD 19,200) for creating the IAS category-based list and for the STEEI meetings to formulate the National IAS Strategy. Furthermore, INTA will participate in STEEI meetings and workshops with its technicians to formulate the National IAS Strategy, with specific inputs for defining the prevention framework and early detection and control protocols (USD 16,000). And SENASA (USD 42,000) and PNA (USD 34,530) will participate in workshops and meetings for formulating the National IAS Strategy and will include information on IAS, their regulation and management in its institutional communications. APN will also participate in the STEEI workshops and meetings to formulate the National IAS Strategy, providing technical inputs and organizing training sessions in prevention, early detection and control, and prioritization of control and containment or eradication actions (USD 34,000).

Finally, CUDAP will make an important contribution of USD 2,000,000 towards the communication strategy of the National IAS Strategy, including a graphics and web designer; more presence on the international press; specialized staff in communication on IAS; implementation of the strategy through its agencies, including the production and dissemination of short films, advertisements, and news articles, brochures, leaflets, banners, interviews with newspapers, magazines and in specialized programmes; cartoons in children's magazines, design of digital contents, audiovisuals and spots on the National IAS Strategy.

Strengthening of regulatory frameworks and financing mechanisms for implementing the National IAS Strategy

Although Argentina has made progress as regards the national regulatory framework on IAS, it is still spread out and incomplete. Nonetheless, there are some examples of progress in specific cases that can be used to develop a national framework facilitating the mainstreaming of the topic in the policies and laws of several of the involved sectors.

An example is the didymo alga. SAyDS issued Resolution No. 991/2012[37] declaring the didymo an invasive alien species and setting up a Working Group for the control and risk minimization strategy. The WG includes the technical areas of SAyDS, the National Executive Branch, scientific and research institutions. Additionally, it determines that the WG activities must be coordinated with provincial authorities. On the other hand, COFEMA issued Resolution No. 234/2012 which declares the development of provincial and national plans for the Monitoring and Control of IAS algae in aquatic environments an issue of Federal Environmental Interest, so as to avoid the spread of these algae across the country. Furthermore, it calls for the coordination of scientific skills in the country, the participation of competent national agencies, the cooperation of the provincial jurisdictions and the use of the necessary technologies for the effective control of these algae. The above resolutions have been supplemented by resolutions in all affected provinces, approving provincial plans for monitoring and control, and establishing their implementation in a coordinated manner, with the participation of all affected sectors, including the installation of mandatory disinfection

[37] A bill was submitted to have a Law for a National Plan on the control and eradication of the invasive algae Didymosphenia geminata, and it is being addressed in Congress, E. 5454-D-2012.

posts in different localities of the provinces, communication and dissemination, and permanent monitoring of algae spread. Finally, contacts have been established with national authorities (Border Patrol, SENASA, and Customs) to control disinfection at international border crossings, inter-provincial border crossings and airports. In view of the above, and vis-à-vis the threat of a didymo algae invasion, a series of actions have been agreed upon between jurisdictions and sectoral authorities, which provide an opportunity for common solutions, strategic visions and synergy of efforts, which could be replicated at a greater scale and vis-à-vis other IAS threats.

At present, Argentina lacks an appropriate budget for implementing the National IAS Strategy. There is, however, important experience in drafting a law on minimum standards and financing mechanisms to ensure budget allocations to a specific area of natural resources and biodiversity conservation, which could be used as inspiration. National Law 26,331 *on Minimum Standards for the environmental protection of Native Forests* provides for a National Fund for Enrichment and Conservation of Native Forests. The provinces have prepared competitive projects, according to their territorial governance, and have established funds.

In order to strengthen regulatory frameworks and financing mechanisms, SAyDS and the environmental authorities as well as the productive sectors affected in the different provinces will provide USD 333,067 as co-financing to cover expenses of workshops to review and agree by consensus on regulations, with the participation of technical, legal and economic staff from all three branches of the State, at the national and provincial levels. PNA and SENASA will spend USD 53,000 on the time of technical staff participating in the above workshops.

Implementation of IAS management and control protocols for species already introduced and established in the country

There are few initiatives overall to have a baseline for IAS management and control. In 2007, APN developed a Strategic Guide for managing IAS in National Parks (Resolution No. 172/07) and there are some specific initiatives for preventing the introduction and spread of invasive alien species, in national and provincial parks. APN Patagonia has developed an institutional strategy and a coordination structure for managing IAS within national parks[38] [39].

Other initiatives include the following:

- The inter-jurisdictional strategy to curb the spread of didymo algae (*Didymosphenia geminata*) in Patagonia. This strategy coordinates the actions of the environment and tourism authorities in the different provinces, as well as AIC, Argentine Coast Guard and APN (Parks Administration), coordinated by the National SAyDS.
- In 2012, technicians from the Fauna Directorate prepared a proposal for the early detection and rapid control or eradication of this species' populations across the country[40] and held meetings with different country experts to update available knowledge on algae spread.
- Since 2010, SENASA, through the National Plant Protection Directorate (DNPV) and the Regional Corrientes-Misiones Centre, has been working on the monitoring and control of

[38] File APN No. 932/07 *Taller para la definición e Implementación de una Estrategia Nacional para el Manejo de Especies Exóticas en la Administración de Parques Nacionales*. (Workshop for defining and implementing a National Strategy for the Management of Alien Species at the National Parks Administration)

[39] File APN No. 455/2007, *Creación de la Coordinación de Manejo de Especies Exóticas*. (Creation of a Coordination Office for Managing Alien Species)

[40] Prado, W y J Meriggi. 2012. *Proyecto Rana Toro. Dirección de Fauna Silvestre, Secretaría de Ambiente y Desarrollo Sustentable*.

the Giant African Snail (collection and destruction of 70,000 specimens) and, at the same time, has carried out dissemination and awareness-raising campaigns among the inhabitants of the affected area with the purpose of preventing its spread and diminishing this pest. The National Ministry of Health and the Ministry of Ecology of Misiones province, vector control agents of the Environmental Sanitation Department of the local municipality, the Argentine Coast Guard, the School of Natural Sciences and the Museum of the *Universidad Nacional de La Plata*, the National Iguazu Park, and the National Institute of Agricultural Technology have also participated in these tasks[41] .

With a view to enhancing the incipient baseline of the IAS already established in the country, which are a priority in view of their threat to native biodiversity and ecosystems, the different project partners will provide the following co-financing in the next four years: USD 616,744 from SAyDS to cover the expenses of working time of the authorities and technical and administrative staff participating in the pilot tests at the national and provincial levels; CONICET will provide USD 84,484 for the marine IAS, tamarisk (salt cedar) and bullfrog pilot programmes, to cover the work of scientific personnel and the cost of boats for transportation in the case of the marine IAS pilot programme; USD 40,000 will be provided by INTA to render technical assistance during workshops related to the pilot programmes on tamarisks, bullfrogs, giant African snail and glossy privet; USD 75,700 contributed by SENASA will be used to provide technical assistance to the pilot programme on bullfrogs and African snails, in the latter case also providing mobility and administrative staff; CUDAP will provide USD 5,000,774 for communication and awareness-raising campaigns related to each of the IAS addressed in the pilot programmes; APN will pay in USD 41,824 for cleaning fishing gear within the didymo alga pilot programme; USD 251,588 will come from PNA for the marine IAS pilot programme, to cover boat operators and divers and other staff, and for the didymo algae pilot programme, it will cover specialized staff at checkpoints. Finally, the provincial governments (GoP) will make the following co-financing contributions to pay for specialized staff, mobility and equipment: USD 1,994,666 for the didymo algae pilot programme, Government of Río Negro and Chubut Provinces; USD 901,961 for the tamarisk (salt cedar) pilot programme, Government of Mendoza Province; USD 78,400 for the red-bellied tree squirrel pilot programme, Buenos Aires Province Government; USD 184,686, Misiones Province Government for the African snail pilot programme; and USD 160,717, contributed by the Province of Jujuy government for the pilot programme on glossy privets.

Beaver Control

There is a wealth of information on the American Beaver in scientific, academic and administrative circles, which has been consolidated in the EBECPA, an Argentine-Chilean bi-national initiative, that established the following elements to control and eradicate beavers in both countries: 1) carry out a Feasibility Study to eradicate beavers in their current distribution area in southern Patagonia; 2) develop a Bi-national Strategic Plan to Eradicate Beavers (PEBEC); 3) obtain technical-scientific support, funds and set up strategic partnerships to allow for the implementation of PEBEC; and 4) outline a Bi-national Contingency Plan, targeted to implementing a surveillance and early warning system to eliminate the threat of beaver invasion in South America.

[41] http://www.sinavimo.gov.ar/pagina/sistema-de-prevencion-monitoreo-y-control-del-caracol-gigante-africano-achatina-fulica

The Feasibility Study was completed in 2008 and compared different options: 1) extirpation of beavers from the continent, by establishing an early warning system and permanent control in buffer zones of the Tierra del Fuego archipelago; 2) eradication of beavers in the whole of the species' area of distribution in the TDF archipelago and in South America; 3) ongoing control of beavers and of all invasive species, in high priority areas; 4) commercial harnessing; and 5) inaction[42]. The conclusion suggested option number 2 and thus the Bi-national Agreement on Beaver Eradication was signed; and in 2011 the Bi-national Eradication Programme (PEB) was formulated. Based on experience gathered in Patagonia and at the international level and in several bi-national workshops, PEB establishes four steps to achieve eradication: 1. Establishment: 2. Capacity-building; 3. Eradication and Restoration operations; and 4) Surveillance, bio-security and closure. This project will support Step 2.

In parallel to this bi-national process, there have been several other beaver control initiatives. Baseline programmes that will continue their activities during project implementation are the following: i) *Management in the Tierra del Fuego National Park (2001 onwards),* implementing a "Beaver Control Plan" in the south of the protected area. This Project has staff specifically working on beaver monitoring since 2012; ii) *Project on a Conservation Plan for Native Forests in the Natural Recreational Reserve and Multiple Use Reserve of the Corazón de la Isla Protected Area*, financed by Law 26,331, reinforces capacity-building in the provincial public agency. Furthermore, it adds the social benefit of recovering and maintaining a permanent source of 'good quality' water for the different facilities related to the public use of the protected area; iii) the Project on research regarding the "*Links between human perceptions and social and ecological thresholds to restore ecosystems*", within the *Dynamics of coupled Natural and Human Systems Programme (2012-2015)*, assesses the ecological and social thresholds and the "feedback" that has an impact on the participation of stakeholders in environmental management, specifically in the control of American beavers and the subsequent restoration of the riverbank forest in the TDF archipelago.

In the next four years, several of the actors involved in beaver control will invest the following amounts in capacity-building through pilot programmes for eradicating beavers in demonstration areas: USD 233,296 provided by SAyDS to cover the working time of authorities and technical and administrative staff participating in the eradication pilot programme, at the national and provincial levels; USD 583,916 contributed by CONICET to bear the expenses of preparing the baseline on the density of beavers in each demonstration area and identification of ecosystem recovery indicators after eradication, training in beaver control, infrastructure and staff participating in surveillance and bio-security actions, research targeted to solving issues related to bio-security, participation of staff and use of facilities for analyzing lessons learnt, and preparation of a bi-national eradication plan; USD 20,000 provided by INTA to cover technical assistance in the implementation of eradication plans in demonstration areas, and the bio-security system; USD 1,417,000 provided by CUDAP for implementing the communication and awareness-raising strategy with regard to beavers as harmful IAS, and control and eradication measures; USD 256,764 provided by APN to cover training in beaver control and eradication, and provision of staff and facilities used in restoration and monitoring, as well as surveillance and bio-security activities, and analysis of lessons learnt, and preparation of a bi-national eradication plan; and, finally, USD 1,925,770 contributed by the Tierra del Fuego Provincial Government to cover expenses of the participation on the Inter-Institutional Committee and follow-up activities, preparation of a

[42] Parkes et al., 2008

baseline for the Corazón de la Isla reserve, financing of restoration and recovery monitoring actions, contributions to the system for coordinating and implementing the pilot programme, participation in training sessions, development of GIS, infrastructure and staff participating in surveillance and bio-security, analysis of lessons learnt and preparation of a bi-national eradication plan.

b) Remaining barriers to be addressed by the Project

Lack of analysis and information on the socio-economic costs and the impact on native biodiversity of IAS in the different sectors: tourism, trade, production and administration. This barrier leads to an absence of a strong incentive to move progress in the development and implementation of the National IAS Strategy, and also the generation of a harmonized regulatory framework that can prevent the entry of IAS, provide for early detection and rapid response, control and eradication, of priority IAS in accordance with the importance of their impact.

A wealth of information on IAS, however disperse and not easily accessible. A barrier to overcome for the integration of information into databases and Geographic Information Systems (GIS) at the provincial level, is the willingness to share information and generate shared analysis, since currently this information is spread among different institutions, depending on the provinces or administration sectors. The academic and technical sectors do not participate actively in providing information to the InBiAr, among other reasons, because they distrust that its origin will be duly accredited. Furthermore, InBiAr does not have a validation system for the information it includes. In this regard, there is a lack of coordination and linkage of the rich information existing in the network, and it is not easily available for decision-makers and those responsible for managing IAS.

The lack of a National IAS Strategy disables the management of the complex IAS issue given its cross-cutting nature across sectors and geographic borders. While progress has been made with regard to certain legal and regulatory instruments and valuable information databases, there is no coordination and harmonization of these instruments among sectors and between the national and provincial government levels. Furthermore, the lack of an official list of Invasive Alien Species already introduced in the country (classified by risk), and a consistent National IAS Strategy also leads to a lack of prioritization of resources and actions related to the control of IAS already established in the country.

Lack of knowledge on the IAS issue and capacity to apply instruments to prevent their introduction, including risk analysis, border control systems, and early detection and action, which should ideally be based on an official list classifying IAS according to their potential risk. The staff of maritime agencies, certain port administrations, and national and provincial parks have little or no knowledge on such instruments and their application, including measures for managing ballast water as an important IAS vector which must be systematically managed to avoid entry of IAS.

Lack of communication and awareness-raising on the problem of IAS resulting in low or no collaboration from several stakeholders that may cause unintended introduction of IAS or could play an important role in early detection and rapid response. The main barrier for containing the spread of some species is related to their charming (charismatic) appearance which leads to the ungrounded assumptions of a harmless animal whose release would entail no negative environmental risks, or need for control actions in once released. Other

shortcomings in communication include: i) dissemination by experts, scientists and academia of their research findings through other means than the mass media, with a language that is not fully accessible for the public at large; ii) journalistic communication is sporadic, erratic and subject to mass media agendas; iii) communication by mass media does not use specific terminology consistently, which leads to confusion and can generate ungrounded social resistance; (there is no proper use of the terms, *pest species*, *invasive species*, and how these relate to *native* and *non-native species*). During the design stage, no study was identified on social perception and knowledge of IAS. Having real, direct information with regard to what society knows, understands and perceives as a problem is a very important input for designing a communication and awareness-raising strategy.

Disintegrated Regulatory framework, non-systematized and incomplete at the national and provincial levels leads to little efficiency and effectiveness at the aggregate level in the actions of stakeholders in relation to IAS issues. The current regulatory framework considers the topic in a fragmented manner and lacks a strategic approach. For instance, the many different institutions with jurisdiction in this matter granting authorization to introduce IAS or relocate them internally, have procedures in which there is no intervention of the competent environmental authorities and in which -historically speaking- production objectives have prevailed without considering potential environmental threats. The legal framework has no appropriate specific provisions for control, containment and eradication so as to guide decision making and the actions of competent authorities. Additionally, there are certain loopholes in the regulations on, for instance, flora –ornamental plants-, with regard to internal movements in the country of alien species already established in given areas which could be invasive in others, bearing in mind that the country hosts a considerable number of different eco-regions.

Lack of a National Law on Minimum Standards and budget for managing IAS is a very important barrier related to the autonomy of the provinces in natural resource management, and the low level of allocation of resources for managing IAS.

Lack of prioritization and control and eradication of IAS already introduced and established in the country. While there is good knowledge of IAS already introduced and established, there are only a few experiences, programmes and protocols for their management, control and ultimate eradication. Furthermore, since these actions can be costly, the lack of species prioritization (based on clear criteria as regards their impact and risk for society, ecosystems and native biodiversity) is an important barrier for action.

The beaver problem is well known and has been studied but there is still **a need for capacity-building and formulation of a realistic bi-national programme for eradication and restoration**. This programme must be outlined within a bi-national process in the framework of the Bi-national Agreement and PEB. It must also be based on specific experiences on eradication methodologies and cost-effectiveness in different ecosystems and land tenure regimes, with the involvement of different actors. Finally, the lack of a financing strategy and plan is preventing moving from control pilots to the full eradication process.

c) Incremental reasoning (added value to GEF funding)

Taking into account the above-mentioned barriers, continuity of the current situation will increase the risk and threats on biodiversity due to the introduction of IAS, as well as the impacts of their establishment and dispersal, increasing the vulnerability of ecosystems, including those areas with globally important biodiversity.

The co-financing and the incremental GEF financing will contribute to remove the above barriers and, likewise, move ahead with national and international commitments on IAS governance by developing and implementing a National IAS Strategy. This National Strategy will get feedback from and be supplemented by control and management pilot programmes on IAS prioritized due to their very harmful impacts, and by an eradication experience of the American Beaver in Tierra del Fuego. With the above, plus capacity-building and the reinforcement of the policy and regulatory framework, incremental benefits will be achieved to improve IAS governance and management, offering lessons learnt at the National, Regional and Global levels. With a view to achieving this incremental impact, the project is organized in four technical components under the following incremental reasoning:

Component 1: Strengthening institutional capacities at the national and provincial levels for IAS management. As an incremental contribution, the project will finance the uploading into InBiAr of updated information and knowledge generated by national universities and research institutes (CONICET), and by the authorities of the national and provincial parks on IAS spread, impact and management actions. Furthermore, it will support the creation of a national information network on IAS and appropriate mechanisms for effective access to and use of such information. Since InBiAr is interconnected with IABIN and follows standards compatible with GIDS, IUCN, GISIN and GIASIP, this incremental investment not only helps to solve specific IAS management problems in the country, but also offers information to reduce the impact of IAS on biodiversity at the regional and global levels. Better information will also lead to establishing a national IAS category-based list, according to the risk posed by each species. The categories and criteria for inclusion of IAS on the list in each category will be decided seeking consensus with all sectores influenced by the IAS problematic.

Besides the investment to be made by several central and provincial governments, under the leadership of SAyDS, GEF resources will be invested in workshops to formulate the National IAS Strategy, the core output of this project, through a process of participatory consensus, and based on the notions established in the National Biodiversity Strategy. The National IAS Strategy will consists of a guiding document and the project will support coordination of actions related to communication and education, prevention, early detection and rapid response, priority setting, control and eradication. The National IAS Strategy will be prepared in agreement with and will be signed by the Government of Argentina (GoA), provincial governments (GoP) and key institutions across the country. Moreover, GEF resources will be used in support of training courses in the application of instruments to be developed as part of the National IAS Strategy, including instruments for prevention, early detection and rapid response, prioritization, control and eradication. Finally, support will be provided to a study on social perceptions so as to define communication strategies for raising awareness on IAS impacts and management instruments, and the production of documentary spots for radio and television. Having a National IAS Strategy, reinforced capacities and a communication strategy for its implementation is essential to move ahead in managing IAS in Argentina, in a coordinated and comprehensive manner, offering a better protection vis-à-vis IAS threats to native biodiversity and ecosystems of global importance.

Component 2: Strengthening regulatory frameworks and funding mechanisms in support of the implementation of the National IAS Strategy. GEF incremental contributions will support the establishment of a participatory consultation mechanism to harmonize existing regulatory frameworks, generate instruments to fill loopholes, and provide technical assistance to include criteria for managing IAS in sector-based regulations. These criteria will be based on the precautionary principle supported by category-based list of IAS, according to their potential impact, risk analysis and early warning systems. The provincial

and national governments will work jointly at legislative and judicial levels. Technical assistance will also be funded to formulate a bill for a law on Minimum Standards and budgets for IAS management, which will be the guiding rule for the whole country (beyond the provincial independence granted by the central government) opening the possibility of establishing financial mechanisms in support of the National IAS Strategy. Finally the project will also support the integration of the IAS problematic in the MERCOSUR agenda, particularly at the ordinary meetings of Sub-Working Group No. 6 on the Environment.

Component 3: Validation and implementation of protocols for controlling IAS, prioritized by taxonomy categories and ecosystems, included in the National IAS Strategy. To move ahead in controlling IAS already introduced and established in the country, and as part of the validation and adaptation of the National IAS Strategy, the project will support the implementation of protocols for managing six priority-IAS, due to their socio-economic impact and effect on native biodiversity of global importance: the red-bellied tree squirrel, didymo algae, tamarisks, bullfrogs, African snails and glossy privets. GEF incremental resources will be used to finance technical assistance, consultation, information sharing and training workshops for the local population, and small teams for control purposes. This will be provided apart from the above-described baseline financing already invested in the control of didymo algae and African snails, to increase the number of well-established IAS in Argentina under control and, if possible, to eradicate them, and thus have additional experiences and improve recovery of biodiversity and vulnerable ecosystems.

Component 4: Development of the Pilot Programme for eradication of the American Beavers in Tierra del Fuego Province based on the governance of Invasive Alien Species. As an incremental contribution to the bi-national baseline for beaver control and eradication, technical assistance will be financed for planning beaver eradication in demonstration units, representing different ecosystems and land tenure modalities. The project will also fund training workshops, participation and planning, local transport and clothing, tents and sleeping bags for the cold weather of Patagonia. The purpose is to identify cost-efficient methodologies for eradicating, monitoring and preventing re-invasion, and to identify effective practices in support of the restoration of ecosystems and riparian *Nothofagus* forests. This GEF contribution, together with a similar contribution on Chilean territory (Project GoC/FAO/GEF ID 5506), will be a catalyst in the bi-national process to formulate a bi-national programme for beaver eradication and restoration of the ecosystems based on the capacities built in the demonstration units.

1.1.2 FAO's comparative advantages

FAO has considerable experience in biodiversity conservation and ecosystem management, including IAS and the protection of the health of plants, trees, forests, agricultural landscapes, aquatic species, wildlife and livestock. The FAO Global Plan of Action for Animal Genetic Resources for Food and Agriculture has the purpose of ensuring the sustainable development of native, non-native and invasive alien species in ecosystems, even in agricultural ecosystems. For several years, the FAO Forestry Department has worked on managing and controlling plant pests –in many cases insects- which have the potential of increasing dispersal in times of global changes. Additionally, a new FAO forestry publication "Wildlife in a changing climate" attaches significant important to IAS and their management, including case studies on, for instance, invasion and eradication of the Coypu (*Myocastor coypus*), a semi-aquatic rodent, native of South America. This rodent causes tremendous damage to riverbank inhabitants, to plants and crops in many countries in Asia, Europe and North America, very similar to the problems of beaver invasion in TDF and Patagonia.

Based on its experience in projects on the topic, FAO is currently developing tools to maximize the benefits of climate change adaptation in agriculture, livestock and forestry development programmes, including adaptation to new IAS dynamics, through the FAO Regional Office for Latin America and the Caribbean (RLA). With regard to IAS specifically, FAO has supported the establishment of a network for forestry dynamics and pest management in the Latin American sub-region comprising Argentina, Brazil, Chile, Paraguay, Uruguay and Bolivia. The purpose is to provide appropriate information for proper decision-making.

Additionally, FAO has participated in discussions and work related to IAS within the framework of the Convention on Biological Diversity and has frequently provided inputs on this topic, for instance, by participating in the Inter-agency Liaison Group on IAS and the Ad Hoc Technical Experts Group (AHTEG), and by issuing declarations at the SBSTTA/CBD meetings. Within this multilateral environment, FAO has established cooperation bonds with renowned experts as, for instance, the IUCN SSC Specialist Group on IAS, and can use such contacts for project implementation.

FAO also supports the government of Chile in formulating a project proposal co-funded by GEF, to implement an eradication pilot programme and to formulate a bi-national plan for beaver eradication and ecosystem restoration, in joint work between Chile and Argentina. Since FAO is the agency for both projects, it will facilitate coordination between the two countries and processes, and technically support coordinated implementation of the Second Phase of the Plan in both countries.

1.1.3 Participants and other stakeholders

It is complex to establish a control governance framework for IAS since it must include a wide range of sectors and stakeholders at all levels. During project preparation, two consultation workshops were organized at the national level and several provincial workshops were held to also ensure the participation of these actors in project design. The main actors and stakeholders are the GoA, GoP, through the environment agencies (SAyDS, APN and their provincial peers, including provincial parks and natural reserve agencies), all of whom are politically and administratively responsible for IAS.

Additionally, it is important for the following agencies and their provincial peers (when applicable) to participate in the design, validation and implementation of the National IAS Strategy: Ministry of Foreign Affairs and Worship – a strategic partner for the communication of the National IAS Strategy to neighbouring and MERCOSUR countries and to other regions; the Ministry of Health – relevant partner when an IAS directly or indirectly affects human health; SENASA - an important partner with experience, methodologies, instruments and trained staff to control the introduction of pest species across borders and points of entry to the country, and in inter-jurisdictional traffic, all this experience and capacity should be taken advantage of for the National IAS Strategy; the General Ports Administration (AGP) – an important partner for controlling the introduction of IAS through ballast water and other vectors entering the ports; the Ministry of Agriculture, Livestock and Fisheries, the Federal Fishing Council (CFP) and the Ministry of Tourism – relevant partners to include measures for prevention, early detection and prompt action, and control in sector-based rules and regulations; the National Road Directorate (DNV) – a relevant partner for controlling potential IAS dispersal in the country, and the National Ministry of Social Development – a relevant partner given its close relationship and communication channels with the Indigenous Peoples

that can be affected by IAS and can also act as important partners for controlling IAS. Most of the provinces have administrative organizations (Indigenous Community Institutes; Indigenous Affairs Directorate; Indigenous Communities Advisory Council, etc.) that are in direct contact with the indigenous people and are key players for interacting with these people on IAS-related topics.

Coordination of provincial agencies is essential given the federal nature of the Argentine Republic, in which the provinces are in charge of managing natural resources. Furthermore, besides the environmental agencies, the provinces' productive and services sectors (tourism, agriculture, forestry and fisheries) – those potentially using IAS and/or impacted by IAS- will also participate directly in the formulation of the National IAS Strategy and in the implementation of the control pilot programmes. Other provincial agencies will also take part in the process such as the education ministries or secretariats, and the provincial police forces. Some provinces will play an additional role in the project due to their participation in the Pilot Programme on validating protocols to control priority IAS already established in the country (Component 3) and the Pilot Programme on beaver control and eradication (Component 4). This includes the provincial governments of Buenos Aires, Chubut, Jujuy, Mendoza, Misiones, Neuquen, Rio Negro and Tierra del Fuego.

Other important actors in the design, validation and implementation of the National IAS Strategy are science and research institutions, including national universities and CONICET research centres. These institutions will help to improve the IAS database and to establish an information network (Component 1) in cooperation with APN, several provincial agencies and the InBiAr which also handle relevant information for an informed preparation of the National IAS Strategy. he science and research institutions involved in the project are the following:

- CONICET is the main agency for promoting scientific research in Argentina, within the structure of the Ministry of Science, Technology and Productive Innovation. Among the research centres working more directly with the study of IAS, it is worth mentioning CADIC, CENPAT, IADIZA, IFEVA and IMBIV, thus providing good territorial coverage. CONICET is managed by a board that coordinates scientific policies at the national level. This centralized coordination simplifies interaction with the agency through cooperation agreements that will foster the participation of researchers in the National IAS Strategy. Especially CENPAT will collaborate in validating information on marine species (Components 1 and 3), and CADIC will support work with beavers (Component 4).

- INTA covers the whole of the national territory and includes a significant number of researchers who analyze productive processes and their impact on economic, social and environmental variables. As regards IAS, the Biological Resource Institute and the Natural Resource Research Centre (CIRN) seem to be particularly relevant. CIRN studies climate, water, soil and biological diversity (flora and fauna).

- The following are among the national universities that have research groups specifically working on IAS: *Universidad de Buenos Aires, Universidad Nacional del Comahue, Universidad Nacional de Córdoba, Universidad Nacional de La Plata, Universidad Nacional de Luján, Universidad Nacional de Mar del Plata, Universidad Nacional de Río Cuarto and Universidad Nacional del Sur*. These universities have cooperation agreements signed with SAyDS, which simplifies the participation of teachers and researchers in actions related to the National IAS Strategy. The

Universidad Nacional del Sur will see to the database management in cooperation with SAyDS (Component 1).

- Scientific associations such as the Argentine Botanical Society, the Argentine Ecology Association, the Argentine Herpetology Association, the Argentine Mammal Zoology Society, are important for Component 1 and, AHA in the case of Component 3. They are also very important for disseminating the scope of the database among their members.

The Armed Forces, including the Border Patrol, are key actors for preventing the introduction and controlling and eradicating IAS (Components 1 and 3), since they are deployed across the whole of the country, have jurisdiction over border crossings and are responsible for helping other agencies present at the border crossings such as the National Customs Administration (ANA) and SENASA. The National Coast Guard is also important in their role of security police for navigation, and also as a judicial and security force. They have jurisdiction over the maritime coast, lakes and rivers.

Other important actors that should participate in the formulation and implementation of the National IAS Strategy are private actors from the productive sectors. They become involved through first tier organizations such as the Argentine Industrial Union (UIA), the Argentine Forestry Association (AFOA), the Association of Farmers, Federation of Argentine Tourism Chambers (FEDECATUR), Argentine Tourism Chamber, etc. Likewise, it is good to attract organizations representing the private sector at the local level, particularly in those places in which a pilot programme is being implemented for validating protocols to control IAS already established in the country (Components 3 and 4).

To ensure a participatory and efficient formulation and implementation of the National IAS Strategy, it is essential to ensure the participation of NGOs. The Argentine Republic has a long-standing tradition of participation of third-sector organizations in biodiversity conservation. Several environmental NGOs work on projects related to IAS and their impact on biological diversity. At the national level, these include the *Fundación Vida Silvestre Argentina*, *Fundación Patagonia Natural* and *Asociación Aves Argentinas* and, at the local or regional level, the *Fundación Conydes* (Río Cuarto, Córdoba) and the *Asociación Conservacionista del Sur* (Bahía Banca, Buenos Aires). Several international NGOs also carry out activities related to IAS in Argentina, such as WCS (Wildlife Conservation Society – that will participate in the beaver pilot programme, component 4); CLT (Conservation Land Trust) and *Fundación Humedales* / Wetlands International. The indigenous peoples will also participate in the formulation of the National IAS Strategy (Component 1), and particularly the *Cocloya* peoples, in the pilot programme to control glossy privy (*Ligustrum lucidum*) (Component 3).

Finally, the Argentine Association of Scientific Journalists and the Argentine Association of Environmental Journalists (AAPA) are key organizations to contact specialized communicators in this field. Mass media, the printed press, radio, television and multimedia (the Internet) are core partners in the National IAS Strategy's Communication and Awareness-Raising Strategy (ECCP in the Spanish acronym), including "central media" reaching out at the national level as well as local media in each community. The Argentine Government, through its national press and dissemination area, is the main partner in ECCP, since it coordinates actions with most of the mass media. Furthermore, it can develop contents, promote interviews and adjust communication according to the needs concerning gender, indigenous peoples and sectors vulnerable to IAS.

1.1.4 Lessons learnt from past and related work, including evaluations

The preparation of this project was based on the document "INVASIVE ALIEN SPECIES: A toolkit of best prevention and management practices"[43], of the *Global Invasive Species Programme (GISP),* as an important basic instrument for Phase I of the PMAS and its implementation. Furthermore, several resources on the topic[44] were also used, including a book to disseminate the problem of IAS in South America[45] published by the Global Invasive Species Programme (GISP), and publications by the Invasive Species Specialist Group (ISSG) - IUCN.

Similar initiatives are underway in Uruguay, Brazil, Paraguay, Venezuela, Colombia, Costa Rica, Peru, Ecuador and other countries of the region. As regards IAS information and database management, a good option is the government institution responsible for the topic, cooperating with a science or research institute. Consistent with these experiences, administration of the database in Argentina will be shared by SAyDS and the *Universidad Nacional del Sur* which currently acts as database administrator.

As to the creation of an official IAS list, two big categories have traditionally been used: allowed and prohibited species (before known as white and black lists). These categories, however, do not sufficiently include all possible situations for IAS. Many species can be problematic with regard to certain uses or when introduced in a given region and thus the condition of these taxonomic categories cannot be considered in absolute terms. It is also difficult to have a full black list including all potentially invasive alien species. Regarding the categories to be used in Argentina, the country will follow the South African model, with the changes suggested by the specialists after due analysis. This model includes categories such as prohibited species and mandatory control species; species used under strict control; species prohibited or regulated by area (their use is restricted or banned in certain regions); species prohibited or regulated by activity (their use is restricted or banned with regard to certain activities).

Possibly one of the most efficient invasion-prevention systems is the one adopted by New Zealand. One of the most remarkable features is the centralization of strategic planning and of the prevention and control actions aimed at bio-security, which encompasses species that are risky for biodiversity but also for production and human health. The Government of Parana State, Brazil, as a control criterion in the use of potentially invasive alien species has stopped producing non-native forest species in all government-run nurseries and has replaced them by native tress. Furthermore, it promotes the gradual replacement of invasive alien trees in parks and public promenades, as a way of avoiding a contradictory message to the population. The US Department of Agriculture (USDA) has an early detection and rapid response system vis-à-vis invasions, using action protocols for aquatic and land plants, animals and micro-organisms[46].

With regard to training in IAS, the Hórus Institute for Environmental Protection, Brazil, provides courses on IAS control to government agency technicians in the different states[47]. In Mexico, the National Commission for Knowledge and Use of Biodiversity (CONABIO) has a website with very valuable resources for raising awareness and training with regard to IAS, in

[43] Wittenberg, R., Cock, M.J.W. (eds.) 2001. Invasive Alien Species: A Toolkit of Best Prevention and Management Practices. CAB Internacional, Wallingford, Oxon, United Kingdom, xvii - 228.
[44] http://www.issg.org/gisp_publications_reports.htm
[45] http://www.gisp.org/publications/reports/gispSAmericasp.pdf
[46] http://www.invasivespeciesinfo.gov/toolkit/detection.shtml
[47] http://www.institutohorus.org.br/index.php

partnership with the national strategy[48]. One of the most noteworthy examples of training in IAS management is the programme "Working for Water" in South Africa[49]. Through this programme, the South African government addresses the control of invasive tree species whose dispersal threatens water supply for agriculture, human consumption and biodiversity conservation. The programme supports the training of staff working on controlling invasive species, together with job promotion and improvements in food and health-related education of relegated sectors of society.

The Brazilian National IAS Strategy[50] has among its general guidelines that of Education, public awareness-raising and exchange of internal and external information for prevention. The experience gained by the National IAS Strategy in Mexico as regards dissemination and communication points to the fact that success in the implementation of the National IAS Strategy not only depends on the timely actions of the authorities but also on the support and cooperation of society at large. The National IAS Strategy must include a communication strategy, using updated and reliable information that helps to understand the problem in a user-friendly manner.

The basics of legislation on IAS in international organizations has been compiled in the IUCN "*Toolkit for Developing Legal and Institutional Frameworks for Invasive Alien Species*", which also provides guidelines for addressing the legal matters of the National IAS Strategy - in line with CBD, Article 8 (h). The countries in the region that have developed their National IAS Strategy have provided examples regarding the review of the different regulatory frameworks. For instance, Brazil, a federal country, depicts lessons on the independence of its states within a central policy. Mexico is another Federal country but with a more centralized government structure as to the outlining of the regulatory framework for its Strategy.

At the international level there is lots of experience in IAS control and eradication. Different international organizations, such as the GISP programme, have developed toolkits containing guidelines for managing this problem[51]. The Nature Conservancy edited a handbook with methods to control invasive plants in protected areas[52]. International experience indicates it is essential to have an effective *participation of society* in eradication projects to face the existing skepticism as regards the success of these conservation strategies[53]. Several control projects worldwide have suffered serious restrictions or have failed outright due to the pressure of opinion groups opposed to any actions for capturing IAS. International experience also shows that eradication actions can significantly benefit native species and ecosystems. An assessment of the IUCN Red List data has shown that 11 bird species, five mammal species and one amphibian species have improved their conservation status as a result of the eradication of invasive species[54]. Out of over 1000 eradication attempts [55] implemented so far, 86% was successful, including the several long-standing eradications of invasive species. It has been proven that eradication can be cheaper than ongoing control programmes.

[48] http://www.conabio.gob.mx/invasoras/index.php/Portada
[49] http://www.dwaf.gov.za/wfw/
[50] http://www.mma.gov.br/estruturas/174/_arquivos/anexo_resoluoconabio05_estrategia_nacional__espcies__invasoras_anexo_resoluoconabio05_174.pdf
[51] Wittenberg R & MJW Cock. 2001. Invasive Alien Species: A Toolkit for Best Prevention and Management Practices. CAB International, Wallingford, Oxon, UK, 228 pp.
[52] http://www.invasive.org/gist/handbook.html
[53] Cromarty et al. 2002, Towns y Broome 2003, Menvielle et al. 2011
[54] McGeoch et al. 2010
[55] Simberloff et. al. (2013)

Marine ecosystems are usually the exception. Control or eradication of marine invasive species has provided an important lesson on the fact that efforts should focus on prevention and early detection. The "*National Evaluation on the Status of Ballast Water along Argentina's Marine and River Coasts*" (GloBallast Programme, November 2010)[56] has provided baseline information and lessons learnt with regard to the interaction of the players in developing a strategy, and in weighting the need for inter-institutional agreements to allow its implementation. Within the framework of GloBallast, there is a regional cooperation experience between Brazil and Colombia for studying ballast waters. Specific guidelines were identified for ballast water management in each port to avoid the introduction and transport of IAS and pathogens between sea ports worldwide. The Government of Colombia shared some of the most representative experiences on the matter -ports of Cartagena and Puerto Bolivar- which led to a few changes in the application of the Annex to resolution IMO A 868.

As regards the management of vertebrate invasions, eradication is becoming more broadly accepted for ecosystem restoration and the frequency of its application is increasing, as well as its geographic distribution coverage, size of the managed area and complexity[57]. Invasive vertebrate species that have been eradicated from bigger islands are goats, pigs and Arctic foxes[58]. The eradication of goats from Isabella Island - Galapagos- entailed managing 412,000 hectares. In Mexico, vertebrates have been successfully eradicated from the Lower Gulf of California islands. On the other hand, most of the eradication attempts have been targeted to rodents (over 350 cases) and hoofed bovidae (over 160 cases), and in temperate climates (72% of cases). In Europe there are several examples of very efficient actions that provide "key" lessons for beavers and red-bellied tree squirrels, such as the eradication of the aquatic rodent called coypu (*Myocastor coipus*), in Great Britain, or the ruddy duck (*Oxyura jamaicensis*).

The eradication of coypus in Great Britain[59] is one of the biggest and most complex eradication campaigns worldwide. It was successful thanks to the fact that the eradication was planned on the basis of scientific information, appropriate funding and the approval of specific legislation, among other matters. In Italy, lessons learnt from the eradication of coypus are that the constructive interaction between applied biology research and a centrally organized intervention has the potential of being widely applied to any invasion of a well-established and broadly distributed mammal[60], as is the case of beavers in TDF.

The work carried out in Argentina by the Commission created to address the invasion of the didymo algae highlights the importance of coordination to face a problem that goes beyond provincial jurisdictions and, moreover, has international components. The experience compiled to date shows that the most efficient option is containment while different chemical control agents are being tested. In 2012, the *Universidad de la República de Chile*[61] started developing the bases for creating a risk assessment platform for didymo in Chile's Tenth Region, to support the sustainable management of freshwater ecosystems for commercial and recreational use.

There is significant experience with regard to tamarisk control, mainly in the south of the United States. Management techniques for this species include mechanical control (manually and also using heavy machinery) and chemical control (spraying with herbicides or application

[56] Global Ballast Water Management Programme - Globallast Partnership
[57] Keitt et al. 2011
[58] Keitt et. al. 2011
[59] Baker 2006
[60] Baker 2006
[61] http://www.didymo.uchile.cl/

on cut stems or branches). Environmental control by flooding has also been tried out[62]. As far as we know, there is no precedent of bullfrog control in Argentina. At the international level, hunting of larvae and adult specimens has taken place as well as egg collection and limitation of the movement of juveniles using fences, and there is a wealth of information to guide management actions[63]. In all cases, restrictions on trade are strongly recommended, also for human consumption or as pets, in view of the risk for this species to transmit chytridiomycosis[64]. The concentration of the African snail in a limited area of Argentina, besides international experience in controlling the species, will allow the application of an eradication strategy. Nonetheless, its presence in Brazil is an ongoing risk of re-invasion, which calls for hard work in dissemination, monitoring and elimination of new trouble spots. Glossy privet control has specific challenges given its capacity to reappear and its dispersal by wild birds. However, the severity of its effects on the indigenous peoples in Northern Argentina and its widespread distribution as an IAS lead to having many precedents to guide control actions[65].

Lessons learnt from the approaches implemented in Argentina for beaver control, collected by CADIC, the government of Tierra del Fuego and the joint intervention with Chile show that it is necessary to maximize the effectiveness of the different intervention instruments and techniques set forth in the Feasibility Study. It is also necessary to have clear, explicit criteria on where, when and how often tools and techniques should be applied, according to the different objectives and contexts. It is necessary to identify the best sequence of tools to be utilized, which is determined by how beavers use the environment[66]. The strategic approach for eradicating beavers from TDF calls for repeated control interventions[67], generally using intervention techniques other than control measures used for diminishing the population density of the invasive species[68].

1.1.5 Links to national development goals, strategies, plans and policies, GEF and FAO Strategic Objectives

a) Consistency with national development objectives and policies

The formulation of the National IAS Strategy relates to the national regulations stating that the National Government must establish the basic environmental protection threshold which applies equally across the country as an irrevocable floor guaranteeing all inhabitants a minimum level of environmental protection, no matter where he or she is. On the other hand, the Provinces must regulate on the harnessing and use of natural resources. Therefore, this project is related to the objectives of Argentina's General Environment Law No. 25,675 and the Constitutional guidelines on the protection of the country's ecosystems and biodiversity. Moreover, it is aligned with the country's accession to International Conventions such as the United Nations CBD (see sections 1.1.c and 1.1.5.b). Within this framework, the country has the National Commission on Biological Diversity (CONADIBIO) that works under the coordination of SAyDS and includes representatives of provincial governments and public and

[62] http://www.issg.org/database/species/ecology.asp?si=697
[63] Snow N & G Witmer. 2010. American Bullfrogs as Invasive Species: A Review of the Introduction, Subsequent Problems, Management Options, and Future Directions. Pp: 86-89. En: Timm R & K Fagerstone (Eds.). Proc. 24th Vertebr. Pest Conf. University of California, Davis.
[64] http://www.issg.org/database/species/ecology.asp?si=80
[65] Tu M, C Hurd & J Randall. 2001. Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas. The Nature Conservancy. http://www.invasive.org/gist/handbook.html
[66] Parkes y Nugent (2009)
[67] Parkes et al. 2008
[68] *Experiencia en la cuenca del Río Pipo* Escobar et al. 2011

private agencies at the national level. The above Commission has a Sub-committee that works specifically on biological invasions. The project is in line with the mandates of the provincial constitutions on the protection and preservation of biodiversity to benefit current and future generations.

The management of invasive alien species is a fundamental pillar for implementing long-term sustainable production policies, taking into account the impact of IAS on natural resources and ecosystem-based services which are the basis for primary productive activities such as agriculture and livestock breeding, and for industrial activities, in view of the well-known, significant impact of these species on electricity generation and transmission systems.

b) **Consistency with the National Biodiversity Policy and Strategy**

Article 8 (h) of the Convention on Biological Diversity states that all Contracting Parties shall, insofar as possible and as appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species. In its NBDS (2003), Argentina includes within the field of action of Biological Diversity and Agro-ecosystems, Objective 1 (3): *To assess the environmental impact and control the introduction and management of alien species and genetically modified organisms, preventing the involuntary introduction of undesirable organisms (weeds, pathogens) and trying to minimize risk to human health and the genetic pollution and/or ecological displacement of local species and eco-types*.

Furthermore, the National Biological Diversity Strategy has among its 18 fields of action: prevention and control of IAS by applying the precautionary principle, according to which any introduction is considered potentially harmful for the environment, biological diversity, quality of life and different human activities; establishment of severe restrictions on imports and the voluntary or accidental introduction of new alien species; strengthening of mechanisms to control the trafficking of live species, including plant and animal health issues and, in all cases, the need to require a prior risk and impact assessment; awareness-raising among the different sectors of the community as to the risks and harm stemming from the voluntary or accidental introduction of alien species; development of programmes to reverse or mitigate the negative effects of well-established species. It then proposes four specific objectives: 1) Strengthen plant and animal health as well as customs control, etc.; 2) Regulate the deliberate introduction of the necessary species and alien varieties for production, research or any other use, not leaving aside environmental assessment mechanisms; 3) Develop and define a policy agreed upon by consensus to prevent the introduction of alien species and foster the use of equivalent native species; and 4) Establish early detection and control mechanisms on new alien species, and reverse or mitigate the negative effects of well-established alien species.

c) Consistency with the strategy of GEF's biodiversity focal area

The implementation of the National IAS Strategy contributes to fulfilling the Second Objective of the GEF biodiversity Focal Area *"mainstreaming biodiversity conservation and sustainable use into production landscapes/seascapes and sectors"*. Specifically Outcome 2.3 "*to improve the management framework for preventing, controlling and managing invasive alien species*". Formulation of the National IAS Strategy aims at reinforcing governance, improving capacities and incentives to manage and regulate the use of alien species and prevent invasion by alien species that are harmful for native biological diversity, as well as harnessing the opportunities to support biodiversity-friendly production of goods and services by having resource managers and users –including the private sector, among others transport,

tourism, trade and agriculture- apply safeguards to prevent and control the negative effects of invasive alien species (IAS).

The project's support to development and implementation of the National IAS Strategy also contributes to fulfilling Strategic Objective B "*Reduce the direct pressure on biodiversity and promote sustainable use*" within the CBD Strategic Plan 2011-2020, and the Aichi Targets. Particularly Target 9: By 2020 "invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment". Furthermore, improvement in IAS governance will prevent the extinction of threatened species (Aichi Target 12) by reducing the abundance and area of distribution of the IAS that have a greater impact on the country. Actions encompassed in the strategy will equally allow the restoration and safeguard of key ecosystems for rendering ecosystem services and maintaining health and the quality of life, particularly of the most vulnerable sectors of society, such as the indigenous and peasant communities (Aichi Target 14), increasing resilience of the ecosystems and their capacity of adapting to the effects of global climate change (Aichi Target 15), through the restoration of the environments affected by the presence of IAS. With regard to Target 15, the project will specifically contribute to the Pilot Programme on eradicating American beavers from TDF where this invasive species causes severe degradation of peat bogs, basins and forests, resulting in significant emissions at country level of the carbon stored in these ecosystems.

d) Consistency with FAO Strategic Objectives

The Project addresses FAO's Strategic Objective 2: "Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner". At the regional level, Strategic Objective 2 works on different initiatives, among them, a line of work on "smallholder agriculture and rural territorial development". In this field, the project will contribute particularly to rural territorial development focused on appropriate management of IAS, which can be very important in some areas with agro-ecosystems, forestry systems and/or fisheries impacted by IAS.

In December 2012, the National Medium-Term Priority Framework (NMTPF) for FAO Technical Assistance was signed between the Government of Argentina and FAO. It identified six thematic areas of which the project will support Area C "Environmental protection, sustainable management of natural resources and climate change". Four lines of work have been defined herein and the project will support "Cooperation in biodiversity protection and ecosystem conservation".

SECTION 2 – PROJECT FRAMEWORK AND EXPECTED RESULTS

2.1 PROJECT STRATEGY

The Government of Argentina, within the Technical Sub-Committee on Invasive Alien Species (STEEI), CONADIBIO, made the decision to prepare the National Strategy on Invasive Alien Species (IAS). This project will support the formulation of this Strategy and help build the necessary capacities for its implementation and feedback, through specific pilot programmes on prevention, control and eradication of IAS in the country's different ecosystems, and with different actors from the national and provincial governments, private sector and indigenous communities.

The project has a multiple-faceted and participatory approach in formulating and implementing the National IAS Strategy. It aims at prioritized national objectives based on scientific and practical knowledge on the behavior and risks of different IAS for native biological diversity, public health and socioeconomic relations. It will strengthen governance based on the systematization and accessibility to information on IAS, improve institutional capacities and regulatory frameworks and, moreover, incentives and risk assessment instruments to regulate the introduction and use of alien species and prevent negative impact invasions. The project will also include analysis systems and instruments to determine stock, pathways, speed, routes and vectors for entry and/or dispersal. Early warning and immediate response systems will be established as well as the control and management of well-established species in the country. The idea is to apply safeguards to prevent and control the negative impact of IAS on transport, tourism, trade, sale of pets and agriculture, among others. Finally, to face the challenge imposed by Climate Change on IAS, the National IAS Strategy will have an adaptation approach and will centre its actions on an ecosystem-based notion and mainstream climate change in its different components.

To ensure funds for implementing the National IAS Strategy, partners are sought among the sectors suffering the negative impact of IAS. The threat of IAS on economic production is an opportunity for seeking funding options for prevention, containment and control. It is worth highlighting the industrial and hydroelectric generation sectors given the impact of embedded aquatic organisms, as well as invasive trees reducing the water flow of rivers feeding into dams. The agriculture, livestock and forestry sectors also experience important losses linked to the introduction of weeds and alien pests and are thus appropriate financing partners.

2.2 PROJECT OBJECTIVES

The project's global environmental objective is *to strengthen the governance framework across the country for the effective protection of biodiversity against the impacts of Invasive Alien Species (IAS).*

The project's development objective is *to reinforce current and future socio-economic benefits stemming from conservation and the sustainable use of biological diversity, including natural resources and ecosystem-based services, by appropriately managing the challenge of biological invasions.*

2.3 EXPECTED PROJECT OUTCOMES

Expected outcomes upon project completion are the following:

Outcome 1.1: *Increased effectiveness for protecting biodiversity, sensitive ecosystems, health and the economy at the national level by managing the IAS problem*.
Targets: a) coordinated risk analysis and border control mechanisms agreed upon and, after enactment of the pertinent regulations, 100% of requests for introducing IAS will have been duly analyzed by the system; b) early detection and immediate action systems implemented in at least 25% of the National Parks and in five provincial protected areas (PA) across the country, and at ports on the Atlantic coastline; c) IAS management strategies included in the annual operations plans (POAs) of at least 25% of the country's protected areas; and d) Score of 11/15 obtained in the GEF Tracking Tool (Part VI on IAS, questions 1,2, 4, 5)

Outcome 2.1: *National and provincial legal, regulatory and financial frameworks harmonized and support the effective implementation of the National IAS Strategy.*
Target: score of 3/6 in the GEF Tracking Tool (Part VI on IAS, question 3)

Outcome 3.1: *Coastal and marine ecosystems protected against invasive alien species through early detection and rapid response measures.*
Target: score of 3/5 obtained in the GEF Tracking Tool (Part VI, question 5)

Outcome 3.2: *Recovery in progress of ecosystems and biodiversity highly or potentially affected by six IAS, and risks for health and the forestry and farming sector mitigated, by applying containment and/or eradication protocols*
Targets: a) 3-6 containment, control or eradication protocols for IAS prove their effectiveness through ecosystem and biodiversity recovery indicators on xx hectares (baseline and target will be established in year 1); b) Score of 24/48 obtained in GEF Tracking Tool (Part VI, question 6); and c) adjustment of the National IAS Strategy and its implementation based on six reports on lessons learnt from pilot IAS control programmes.

Outcome 4.1: *Native forest and peat bog ecosystems under effective control of the American beavers in Tierra del Fuego (TDF) and affected or endangered biodiversity in recovery.*
Targets: a) 121,280 hectares free from beavers; b) Benthic microhabitats in basin watercourses freed from beavers recovered to similar conditions as those watercourses not affected by beavers; c) Less organic matter in the sediments of watercourse beds in the basins freed from beavers; d) Streams in the Mimica River area and its surroundings recover their structure to become salmon spawning beds again; and e) Assisted recovery of lenga trees (Nothofagus pumilio), cherry trees and Antarctic beeches (Nothofagus Antarctica) in progress in areas affected but not flooded by beavers (Appendix 7.g)

Outcome 4.2: *Bi-national beaver eradication programme in implementation (at least in the Argentine territory of Tierra del Fuego)*
Target: Bi-national beaver eradication programme in implementation within two to five years after completion of pilot programmes in each country.

Outcome 5.1: *The implementation of the project is based on results-based management and results and lessons learned are applied in future operations.*
Target: The outcomes of the project are achieved and sustained

2.4 PROJECT COMPONENTS AND OUTPUTS

With a view to achieving project objectives and its expected outcomes, it has been structured into five components and 30 sub-components as shown in Table 2.1 and described in further detail below:

Table 2.1: Components and Sub-components of the project *Strengthening governance for biodiversity protection by formulating and implementing the National Strategy on Invasive Alien Species (IAS)*

Component 1: Strengthening institutional capacities at the national and provincial levels for managing IAS
1.1.1 National information system on IAS
1.1.2 Official IAS list
1.1.3 National IAS Strategy
1.1.3.a Prevention of the introduction of IAS
1.1.3.b Early detection and rapid response systems and protocols
1.1.3.c Prioritization, control and eradication systems for national and provincial Protected Areas
1.1.4 Communication Strategy for the National IAS Strategy
Component 2: Strengthening regulatory frameworks and financing mechanisms in support of the implementation of the National IAS Strategy
2.1.1 Harmonized regulatory frameworks for IAS
2.1.2 Financing mechanisms for the National IAS Strategy
2.1.3 Law on minimum IAS standards and budgets
2.1.4 IAS on the MERCOSUR agenda
Component 3: Validation and implementation of protocols for controlling IAS, prioritized by taxonomic categories and ecosystems, included in the National IAS Strategy
3.1.1 System for IAS early detection, dispersal prevention and rapid response at ports and surrounding areas
3.2.1 Pilot on Red-bellied tree Squirrels and other potential IAS used as pets
3.2.2 Pilot on Didymo algae in Rio Negro, Neuquen, and Chubut provinces
3.2.3 Pilot on Tamarisks (salt cedars) in the Cuyo region
3.2.4 Pilot on Bullfrogs at the national level
3.2.5 Pilot on the Giant African Snail in the Parana jungle
3.2.6 Pilot on Glossy Privets in the north of Argentina, with the *Ocloya* indigenous community.
Component 4: Development of the pilot programme for eradication of the American Beavers in Tierra del Fuego province, based on the governance of IAS
4.1.1 Governance and management structure for the Beaver Control and Eradication Programme
4.1.2 Operational Plans and Eradication Protocols for Demonstration Units
4.1.3-4 Capacity-building for managing and eradicating beavers
4.1.5 Implementation of Operational Plans for Eradication in Demonstration Units

4.1.6 Bio-security systems (control, monitoring and prevention of reinvasion)
4.1.7 Communication strategy on beavers as an IAS
4.2.1 Exchange of experiences and coordination of the learning process between Chile and Argentina
4.2.2 Governance framework and Bi-national programme on beaver eradication

Component 5: Project monitoring and evaluation and information dissemination
5.1.1 Project monitoring system
5.1.2 Mid-Term and Final Evaluations
5.1.3 Dissemination of project's good practices and lessons learnt

Component 1: Strengthening institutional capacities at the national and provincial levels for managing IAS

1.1.1 National information system on IAS

Assistance will be rendered for the creation of a national information system on IAS, with the purpose of ensuring that the country has easily accessible and continuously updated and supplemented scientific, technical and geo-referenced information, to support governance decisions on IAS. This system will help in decisions related to risk assessment and prevention, early detection, control and ultimate eradication of species, the efficiency of which depends on the access to reliable data. At the same time, the system will be useful as a tool for disseminating the challenge of IAS at scientific and technical levels, as well as in other sectors of society that can play an important role in the introduction, dispersal or management of IAS.

The system shall be built on the structure of InBiAr and other existing information and knowledge databases that are currently spread out (universities and national research institutions –CONICET- and in the hands of national and provincial park authorities), bringing all these sources into a national network. The Department of Biology, Biochemistry and Pharmacy, *Universidad Nacional del Sur* will be in charge of managing the IAS database, in cooperation with SAyDS. CENPAT will collaborate in validating information on marine species. Furthermore, agreements will be promoted with scientific associations (Argentine Botanical Society, Argentine Ecology Association, Argentine Herpetology Association, Argentine Mammal Zoology Society) to disseminate the scope of the database among their members and promote their cooperation in providing information. The National Park Administration (APN) shall ensure coordination with the System on Biodiversity Information (SBI).

InBiAr information will be reinforced as regards IAS characteristics, with geo-referenced information and photographs, facilitating the detection of new occurrence sites, and favouring early control of invasion outbreaks. It will store risk analysis results as well as those on the environmental, socioeconomic and health impact of IAS, and the outcomes of good practices and control and eradication practices applied in Argentina and in other countries, simplifying the integration of InBiAr with IABIN and the application of standards compatible with GISD, IUCN, GISIN and GIASIP. Furthermore, the objective is to enhance the registry of specialists from within and outside Argentina with experience in the management and/or taxonomy of species of interest to the country. Specifically, the project will finance –with GEF resources- technical assistance for implementing the IT dimensions of the system, information quality evaluation before it is uploaded into the system, data entry, and training and registration of scientists, technicians and naturalists to enhance the group providing reliable information to the system.

Output 1.1.1: The national information system on IAS includes updated information on: the presence, distribution, characteristics and impacts of IAS; specialists within and outside Argentina with experience in the management and/or taxonomy of the species of interest; IAS management projects in Argentina.
Targets: a) 150 scientists, technicians and naturalists registered and active as information providers in seven COFEMA regions; b) 9300 occurrence sites registered; c) 240 registered specialists; d) 120 registered projects; and e) no less than 1400 annual visits consulting the database at the end of the project.

1.1.2 Official IAS list

This component will create an objective system for structuring alien species already introduced in the country and that have invasive features attached to them, into categories according to their socio-economic and environmental risks, as well as their risk for biodiversity, native ecosystems and public health and, at the same time, according to their potential importance from the socio-economic standpoint. The purpose of the system is to set up an official list of Alien Species divided into categories and linked to the prevention and control policies, through use and management regulations according to each category. In this manner, the official IAS list will provide a reference framework at the national level on existing problems and will be used as the basis for regulating use and permits, in areas where the species are already present and in new localities where they may be introduced. The official IAS list shall be reviewed periodically in order to add new species introduced in the country either accidentally or voluntarily. Behaviour of IAS, their productive use and management options for containment or impact mitigation are dynamic. Consequently, within the context of STEEI, a mechanism will be established for the periodic review of the category to which each species was assigned, and for analyzing the need for incorporating new taxonomic categories into the list.

The project will support the definition of category-based classification criteria and participatory processes of a national scope to achieve consensus on criteria and categories in controversial cases (for instance, species that were classified as permitted in a region and as controlled species in an adjacent area). The official list, categories into which species are classified and the connotation of their usage and restrictions shall be established in the regulatory initiatives set forth in the National IAS Strategy, particularly in the law on minimum standards for IAS (see Component 2).

Output 1.1.2: Official list of IAS present in the country duly defined, and organized into categories.
Target: One official IAS list

1.1.3 National IAS Strategy

This sub-component shall support the drafting of a guiding document to coordinate management actions on IAS topics in Argentina, including actions on communication and education, prevention, early detection and rapid response, priority setting, control and eradication. The National IAS Strategy shall be prepared in agreement with and signed by the Government of the Argentine Republic (GoA), provincial governments (GoP) and key institutions across the country. GEF resources will be utilized to fund participatory workshops for outlining the National IAS Strategy, which will include three intervention chapters/components: A) Prevention of Introduction and Invasion; B) Early Detection and Control; and C) Prioritization, Control and Eradication.

Output 1.1.3: National IAS Strategy – guiding document to coordinate actions on communication and education, prevention, early detection and rapid response, priority setting, control and eradication.
Target: National IAS Strategy signed by GoA and provincial governments participating in the pilot programmes under components 3 and 4 as well as by representatives from the six COFEMA regions.

1.1.3.a Preventing of the introduction of IAS

The purpose of this sub-component is to develop the chapter within the National IAS Strategy on Preventing the Introduction and Invasion of IAS and to support capacity-building for its implementation, taking into account the importance already attached to prevention as the most suitable tool to tackle the problem of IAS. When preparing the strategy for preventing introduction, the systems proposed under the I3N programme will be considered, including the following:
i) Identification and classification into hierarchies of the main vectors, introduction pathways and dispersal routes in the country[69], agreement on institutional responsibilities and prevention protocols (detection and decontamination systems for potential IAS vectors), and training of staff responsible for border control;
ii) Review of mechanisms to grant permits for activities entailing the use of alien species, including risk analysis instruments[70] for alien species import requests and the movement of these species from one region to another, and between different ecosystems[71]. Risk analysis must take into account and feed information back into the official list of alien species structured into categories (output 1.1.2) and apply the precautionary principle[72], avoiding introduction in the following cases: a- the species has precedents as having been invasive in other regions; b- there are native or alien species introduced previously that can play the role foreseen for this species; c- environmental and social benefits stemming from its introduction have been duly assessed and do not compensate for the potential harm an invasion could cause. Furthermore, the risk analysis system should be periodically reviewed to ensure it includes accurate diagnoses and is adapted during each review to new climate change scenarios which can alter the ratio between introduced species and native ecosystems;
iii) Promotion and adoption of voluntary codes of conduct to avoid the introduction and dispersal of IAS by actors/associations linked to flower growing and gardening, landscape architecture, zoos and botanical gardens, vets and pet shops.

With a view to preventing introduction of species, a special coordination system will be set up among all institutions responsible for border control and points of entry to the country, such as Customs, Airport Police, SENASA, the Border Patrol and Argentine Coast Guard. Furthermore, the Ministry of Agriculture, Livestock and Fisheries, SENASA and INTA will participate in risk analysis mechanisms and regulations.

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69 Vectors are physical means allowing dispersal of species and include a broad variety, ranging from the ballast water of vessels, fishing gear and sports boats, through to the mud stuck to vehicle tyres or the packaging of cargo. Dispersal routes are paths along which species are taken from one place to another, either intentionally or accidentally, between and within countries.

70 Risk analyses combine information on the possibilities for an introduced species to establish sustainable populations and become invasive in the new region, and the potential impact of its presence on the environment, native biodiversity, the economy and health, with greater or lesser difficulties for its control should an invasion occur.

71 These movements can be just as harmful as the introduction of a species from abroad and must be equally considered within this framework.

72 The precautionary principle means that the lack of unequivocal scientific evidence should not be alleged as a reason for not adopting measures to avoid environmental degradation.

GEF resources will be used to finance technical assistance for analyzing vectors and dispersal routes, consultation workshops, training courses on border control protocols and systems, and risk analysis protocols and activities to promote voluntary codes of conduct.

Output 1.1.3.a: Strategy for preventing the introduction of IAS in Argentina
Targets: A strategy including: a) List classifying the main vectors for IAS introduction and dispersal pathways in the country; and b) Risk analysis system and protocols adjusted to include alien Species of aquatic and terrestrial vertebrates and plants, and two SAyDS technicians trained in their use; c) 30 technicians trained in border control of IAS introduction (SENASA, Border Patrol, Customs, Airport Security Police –PSA- and the Argentine Coast Guard –PNA); d) Adjustment of regulations on the introduction and use of alien species endorsed by CFEEI; and e) Two (2) voluntary codes of conduct (for Botanical Gardens under the Argentine Network of Botanical Gardens (RAJB) and vets and pet shops).

1.1.3.b Early detection and rapid response systems and protocols

The objective of this sub-component is to develop the Early Detection and Control chapter of the National IAS Strategy and support capacity-building for its implementation. The purpose is to reduce the number of IAS settling in areas with very sensitive native biodiversity included in the Protected Areas and, likewise, reduce the costs for controlling invasions in the most advanced stages. The main institutions that should partake in this sub-component are SAyDS, APN, provincial parks and natural reserve agencies, INTA, SENASA, and the border patrol. A system and protocols will be developed for monitoring, detection and immediate action to prevent the establishment of invasive species in Protected Areas (supplemented by a similar system for ports – Output 3.1.1.). Furthermore, assistance will be rendered for training and coaching park rangers and other conservation agents in the application of the protocols, setting up a support network for the proper identification of the species and strategic partnerships to distribute all required tasks.

Output 1.1.3.b: Systems and protocols for early detection and rapid response developed and implemented for national and provincial Protected Areas (PAs).
Targets: a) At least 15 PAs have early detection and rapid response systems and protocols in place and operational; and b) At least 80 conservation agents, including park rangers, trained in early detection, rapid response, control and eradication techniques.

1.1.3.c Prioritization, control and eradication systems for national and provincial Protected Areas (PA)

The objective of this sub-component is to develop the prioritization, control and eradication chapter of the National IAS Strategy and support capacity-building for its implementation. The purpose is to develop controls systems for species already present in areas that are very valuable for biodiversity conservation, especially in PAs. This sub-component will render support to actions aimed at having a good practices manual for applying techniques to set priorities, control and/or eradicate IAS, based on adaptation and linked to actions for restoring ecosystem structure, composition and resilience. Support will moreover be provided for training national and provincial conservation agents in the application of the above-mentioned handbook.

Output 1.1.3.c: Prioritization, control and eradication systems for national and provincial Protected Areas (PAs), developed and implemented.
Targets: a) At least 15 PAs have prioritization, control and eradication systems in place and

operational; and b) At least 80 conservation agents, including park rangers, trained in prioritization, control and/or eradication techniques for IAS linked to ecosystem restoration, composition and resilience.

1.1.4 Communication Strategy of the National IAS Strategy

Project funds will be used to formulate and implement a Communication and Public Awareness Strategy (ECCP) for the National IAS Strategy. It will aim at internal communication (government agencies) and external (public at large) and will convey the risks related to introduction, unregulated use and release of Alien Species. At project start-up, a study will be carried out on the "degree of knowledge and perception of the population with regard to IAS" as an important input for drafting messages and properly selecting communication channels, with the possibility of directing the message according to the specificities imposed by a gender perspective as well as by levels of knowledge, the role and interest of the different actors. This study will be repeated when the project is nearing completion to learn about the impact of implementing the ECCP and thus make the necessary adjustments.

The formulation and implementation of the ECCP will be done in coordination with institutions that share responsibility for communication and awareness-raising, such as the National Ministry of Education, National Ministry of Science and Technology, Ministry of Agriculture, Ministry of Tourism, Ministry of Health, Transport Secretariat, SENASA, CONICET, Border Patrol, Customs, INTA, National Road Directorate, APN, National Legislative Branch, and COFEMA. Work will also be coordinated with the mass media such as TV broadcasting stations like *Canal Encuentro*, *Canal 7 (TV Pública)*; and *Radio Nacional*, etc. Messages on the biological invasion issue will be standardized, while synergy will be generated with other communication and awareness-raising projects on IAS and ecosystem and native biodiversity conservation. Likewise, the project will act in coordination with the press offices of the national agencies participating in the project and of GoPs.

ECCP shall be structured into two parts: internal and external communication.

The "Internal Communication Strategy" will be targeted to government agencies and deliver outcomes for homogenizing knowledge and the use of specific terminology among the different key actors involved. It will be implemented through training sessions for security and oversight authorities, and national agencies either directly or directly linked to the matter. The generation and distribution of brochures, banners and posters will be supplemented with digital contents on the official website, banners and e-newsletters. Institutional publications will be issued in coordination between the National IAS Strategy and CONICET. Once the National IAS Strategy has been validated, a publication on IAS and the National IAS Strategy will be issued and sent out to all provincial jurisdictions, PAs and MERCOSUR.

The "*External Communication Strategy*" will be targeted to the public at large and to stakeholders that act as information multipliers and opinion shapers. The project will help design and disseminate printed material, brochures, posters, banners and announcements in printed media. It will especially support the pilot programme on control and/or eradication (Outputs 3.2.1-6). It will moreover contribute to generating overall knowledge and raising collective awareness on the topic through interviews with newspapers, magazines and in specialized programmes, comics in children's magazines; designing digital or audiovisual contents, and a spot on the National IAS Strategy. The topic will be included in curricular contents at the different levels of national and provincial education, in interactive games and in

informal education. Furthermore, specific actions will be implemented, focused on associations and private federations of sectors relevant to IAS, professional associations and chambers, scientific and environmental journalist associations.

Output 1.1.4: Knowledge and perception on IAS and the National IAS Strategy increased by the end of the project through the implementation of a communication strategy (particularly supporting the six pilot programmes, Outputs 3.2.1-6).
Targets: Communication strategy implemented through communication measures focused on: a) government agencies (brochures, posters and banners, semi-annual Newsletter related to the database and the web site linked to the CONICET website); b) the public at large (announcements in printed media published in the provinces and nationally, interviews in mass media and radio and TV spots); and c) children and youth (curricular contents on IAS for different levels of education –national and provincial- and interactive games).

Component 2: Strengthening regulatory frameworks and financing mechanisms in support of the implementation of the National IAS Strategy

In order to reinforce regulatory frameworks, the main responsible institutions that must participate in the process are SAyDS and the Chief of Cabinet Ministry as Coordinating Ministry, the national institutions with jurisdiction over IAS matters (SENASA, MAGyP, National Coast Guard –PNA-, National Border Patrol, Ministry of Health, Customs, INTA, National Road Directorate, among others), and competent provincial authorities.

2.1.1 Harmonized regulatory frameworks for IAS
The objective of this sub-component is to reinforce and establish national and regional harmonized regulatory frameworks, in support of the implementation of the National IAS Strategy. Within the framework of CONADIBIO's STEEI, and addressed to national and provincial institutions, the project will finance discussion and consensus seeking workshops, and provide technical assistance to harmonize and adjust environmental and sectoral regulations (in agriculture, forestry, fish farming, tourism, health, foreign trade, transport) to the country's IAS official category-based list (Output 1.1.2) and prevention instruments and protocols on introduction (Output 1.1.3.a), contributing moreover to COFEMA's objectives. Likewise, the project will finance the coaching and training of Judiciary and Public Ministry staff on IAS-related environmental and sector-based regulations.

Output 2.1.1: IAS regulatory frameworks harmonized among jurisdictions and sectors (agriculture, forestry, fish farming, tourism, health, foreign trade, transport and environment)
Targets: a) Harmonized regulatory frameworks in eight sectors; and b) 150 Judiciary and Public Ministry staff trained in IAS regulations.

2.1.2 Financing mechanisms for the National IAS Strategy
With the purpose of achieving medium and long-term sustainability in the implementation of the National IAS Strategy, this sub-component will help in supplementing the specific budget for the National IAS Strategy by seeking other financial mechanisms. Thus several sources will be explored in different short, medium and long-term scenarios. In the first case, different sources will be analyzed such as the national treasury, provincial treasuries and specific allocation laws, based on specific Plans and Programmes providing counterpart funds. The project will study synergies between national laws already enacted for promoting activities and minimum standards that can contribute to the common cause of biodiversity preservation, and

will explore funding mechanisms and/or grants from non-profits and/or international organizations.

Under the principle of internalization of environmental costs by users and those responsible for negative impact risks, the idea is to include good IAS management and dispersal risk prevention practices in the regulation of the environmental risk insurance or charges. In the quest for other financing mechanisms, the project will also finance an analysis of options for including good prevention and warning practices for IAS, based on a Payment for Environmental Services (PES) approach in watersheds[73], FSC certification, organic fish farming, environmentally-friendly tourism and corporate social responsibility (CSR) schemes. Under the National IAS Strategy's ECCP (Output 1.1.4) a campaign will be organized to target icon companies because of their position in the market and/or because of their link to environmental goods and services provided by national biodiversity.

Output 2.1.2: Financing mechanisms for the National IAS Strategy developed
Target: At least 1 (one) mechanism agreed upon and developed (PES Fund, environmental risk insurance or charge for IAS, inclusion of good prevention practices for IAS in FSC certifications, organic fish farming, environmentally-friendly tourism or CSR schemes).

2.1.3 Law on minimum IAS standards and budget

Based on the experience of National Law 26,331 *Minimum environmental protection standards and budget for Native Forests* and the related National Fund for Native Forest Enrichment and Conservation, the project will finance technical assistance and consultation workshops to submit a proposal to Congress for a Law on Minimum IAS Standards and budgets. This law will regulate the minimum level of attention that provincial governments and sector-based institutions must pay to this problem. It will provide inputs for guiding principles across the country (beyond the independence granted to provinces by the national government), as well as the possibility to mainstream financial mechanisms such as payment for environmental services (services for protecting the country's ecosystems from IAS) in support of the National IAS Strategy.

Output 2.1.3: Law on minimum IAS standards and budgets developed in a participatory manner, and proposed to Congress.
Target: Law on minimum standards and budget proposed to Congress.

2.1.4 IAS on the MERCOSUR agenda

Taking into account that Brazil already has its National IAS Strategy and Uruguay is carrying out activities in this regard, once Argentina has its National IAS Strategy, MERCOSUR will have an important coverage that will promote the bloc to include the fight against IAS in its environmental strategy. This sets up a platform that could extend to other regional blocs such as the Andean Pact, UNASUR, etc. Furthermore, if Brazil, Uruguay and Argentina have a strategy for marine IAS, 100% of the South Atlantic coastline (12,800 km) will have control tools and systems that will have an impact on the international circulation of IAS. So as to harness this important progress at the regional level, coordinate regional actions and exchange

[73] Following the recommendations of the Declaration of Arequipa, drafted by the Third Latin American Congress on Watershed Management emphasizing the urgency of adopting or increasing PES systems (FAO, 2003. Declaration of Arequipa. Third Latin American Congress on Watershed Management).

experiences and approaches, the project will seek to include the topic of IAS on the MERCOSUR agenda.

Output 2.1.4: The Ministers' Agenda of MERCOSUR Sub-Working Group 6 on the Environment include the IAS topic.
Target: IAS included in the agenda

Component 3: Validation and implementation of protocols for controlling IAS, prioritized by taxonomic categories and ecosystems, included in the National IAS Strategy

The objective of this component is to validate the elements and protocols of the National IAS Strategy by implementing seven pilot programmes focused on the threats of specific IAS. Based on the experiences and lessons learnt, the National IAS Strategy will be adjusted during the project's last year of implementation. Pilot programmes will include early detection and control of marine IAS and the implementation of control protocols for six priority IAS (red-bellied tree squirrels, didymo algae, tamarisks or salt cedars, bullfrogs, African snails and glossy privet) due to their socio-economic impact and their effects on globally important native biodiversity. Furthermore, these pilot IAS have been selected through consultations at provincial and local level during the project preparation to make sure a wide range of IAS situations are covered within these pilots to allow for maximum experience gathering and learning in relation to the different components of the National IAS Strategy. This include to gain ~~IAS will allow the project to gather~~ experiences in control, containment and/or eradication practices for a variety of different species and behaviors (mammals, plants, land invertebrates, forest species and aquatic amphibians), stakeholders (tourism, horticulture, pet shops and ornamental and botanical gardens, provincial and local governments, national and provincial Protected Areas, and indigenous communities, etc.) and ecosystems (wetlands, dry and wet forests, arid areas, productive landscapes and Protected Areas containing biodiversity of high global value). The pilot programmes will be supported by the National IAS Strategy's ECCP (Output 1.1.4), which has a specific sub-component for each pilot programme.

3.1.1 System for IAS early detection, dispersal prevention and rapid response at ports and surrounding areas

The objective of this pilot programme is to establish systems for early detection, dispersal prevention and rapid response for IAS in at least three ports with intense export-related activities (Bahía Blanca, Quequen and San Antonio Este) and their surrounding areas along the Atlantic Ocean coast. For this purpose, technical assistance will be financed as well as the purchase of equipment and material for collecting and testing plankton and benthos and other organisms to update and complete taxonomic lists including IAS already present in all three ports. Reference specimens for each identified organism will be deposited with the research institutions involved. Furthermore, workshops and technical assistance will be funded to design and implement a system for early detection, dispersal prevention and rapid response for managing new invasions at each port, including monitoring protocols agreed upon by consensus among specialists and the reinforcement of ballast water management.

Output 3.1.1: Knowledge on IAS present at ports and the surrounding areas along the Atlantic Ocean coastline of Argentina, completed; and early detection, dispersal prevention and rapid action system for managing new invasions in implementation.

Targets: a) Taxonomic lists updated and completed including IAS present in at least three ports along the Atlantic Ocean coast; and b) Early detection system and monitoring and rapid response protocol adopted by at least three ports.

3.2.1 Pilot on Red-bellied Tree Squirrels and other Potential IAS used as pets.

The objective of this pilot programme is to validate an early detection and control approach for an IAS mammal. The aim is to curb the invasion of red-bellied tree squirrels and keep it to the areas where they are currently present (Lujan River basin, Buenos Aires Province), and reduce the intensity of trade in squirrels for reducing the risk of new invasion outbreaks and avoiding dispersal of the red-bellied tree squirrel to other native forest ecosystems, where these populations could increase and have a significant impact on globally important biodiversity components.

In order to develop a specific communication and awareness-raising strategy, the project will finance a study of the social actors related to the squirrel invasion and an analysis of the public perception baseline among the inhabitants of the Lujan River basin. A communication strategy will then be prepared (Output 1.1.4) and implemented on the risks related to the possession, release (voluntary or accidental) and dispersal of the squirrel and other species used as pets, in a location that will be selected after the perception survey has taken place. The strategy will include: printed material for dissemination at schools and pet shops; and methodologies for presentations and talks to technicians at municipalities; and at schools and other community centres at the chosen location. During the last year of project implementation, the public perception analysis will be repeated among the inhabitants of the selected location, and the communication strategy will be adjusted according to the outcome.

Furthermore, consultation workshops and technical assistance will be financed for preparing a SAyDS resolution and three provincial resolutions (for instance, Buenos Aires, Cordoba and Santa Fe) stating that the red-bellied tree squirrel is a harmful species. These regulatory tools are necessary for supporting squirrel control actions.

Output 3.2.1: Competent authorities and the population at large are informed through a communication strategy on the risks related to the spread of the **red-bellied tree squirrel** and other species used as pets (in coordination with ECCP , Output 1.1.4).

Target : a) 70% of the competent authorities and the population of the selected location and rural area of influence, will be aware of the negative impact of squirrels and support their control; and b) 1 (one) SAyDS resolution and 3 (three) provincial resolutions adopted, declaring the red-bellied tree squirrel a harmful species.

3.2.2 Pilot on the Didymo Algae in Rio Negro, Neuquen, and Chubut provinces

The objective of this pilot programme is to validate the containment approach with regard to invasive algae which, once introduced, cannot be eradicated, by applying a containment strategy to avoid the spread of Didymo algae. Specifically the idea is to protect those areas that are naturally less prone to invasion in Rio Negro, Neuquen and Chubut provinces. An efficient containment of the Didymo algae will avoid profound environmental transformations in Patagonian freshwater ecosystems, which are unique worldwide because of their ecological characteristics. Containing the species and maintaining areas free from its invasion, as well as prevention measures among sports fishermen coming from different countries to avoid the spread of these algae will also reduce the risk of the species expanding globally. Patagonia

fishing areas participate in international sports fishing circuits that can act as dispersal pathways.

At least ten areas of high conservation and low invasion risk by didymo algae will be identified and measures will be established to keep them free of this invasion: a) establishing a network of trained informants (park rangers, conservation agents and fishing guides), obtaining information that will be systematized and centralized in an annual report on the status of this alga invasion in Patagonia; b) developing and implementing GIS, combining data on rivers, tourism and algae distribution; c) implementing a communication strategy to foster and guide self-cleaning of the sports fishing gear; d) signing agreements with SENASA, Customs and Airport Security Police (PSA) to include fishing gear among the items to be inspected at airports; and e) installing cleaning devices and information signs in strategic sites for sports fishing.

Output 3.2.2: The invasion of the **didymo alga** detained in areas of high conservation value in the provinces of Rio Negro, Neuquen, and Chubut.
Target: The risk of Didymo algae invasion in at least 10 areas of high conservation value is mitigated through measures for voluntary cleaning of fishing gear in 20 municipalities of the affected area and dissemination activities (coordinated with the ECCP, Output 1.1.4).

3.2.3 Pilot on Tamarisks (salt cedars) in the Cuyo region

The objective of this pilot programme is to validate the containment and/or eradication approach for a plant species by implementing an experimental management strategy for tamarisks and restoring biodiversity and ecosystem services in two Protected Areas of high conservation value in the Cuyo region. This pilot programme is expected to contribute to the conservation of water resources in sensitive arid and semi-arid regions of Argentina The experimental management strategy will include the following: a) Outlining a baseline on the status and composition of native vegetation and the distribution of tamarisks in the intervention areas mapped, and identifying at least five areas for starting up control actions; b) removing tamarisks from the main forest in Laguna de Llancanelo lake and in the lakes of Guanacache, Desaguadero and Del Bebedero; c) transplanting native plants in the areas freed from tamarisks; and d) monitoring the impact on the recovery of native vegetation and the control of a re-invasion.

Output 3.2.3: Control of the **tamarisk** species and restoration of biodiversity and ecosystem services in two natural protected areas (Ramsar sites at the Guanacache, Desaguadero and Del Bebedero lakes and at Laguna de Llancanelo lake) of high conservation value in the Cuyo region.
Target: Control of **tamarisks** and restoration of biodiversity and ecosystem services on 180 hectares (90 hectares in Laguna de Llancanelo Lake and 90 hectares in the Guanacache, Desaguadero and Del Bebedero lakes)

3.2.4 Pilot on Bullfrogs at the national level

The objective of this pilot programme is to validate a containment and/or eradication approach for an amphibian and protect communities of amphibians in the different wetland ecosystems of Argentina, including endemic species. Further, this pilot will allow for working with an example of an IAS constituting a valued economic activity producing a human consumption product in farms and with populations widely established in the nature from escapes from the farms. The pilot will as such give the opportunity to learn about the best options for

involvement of the academia (la Asociación Herpetológica Argentina (AHA)) in the survey and follow up activities directed towards the early detection and action.

A regulation for bullfrog farming will be proposed as well as protocols for containing invasions, and also control protocols applicable to other areas affected by this same threat outside the country. The project will finance technical assistance and consultation workshops for preparing a national strategy to manage the invasion of bullfrogs, which will include: a) a survey of active and inactive bullfrog farms and the occurrence of spontaneous populations in nearby natural environments, through consultations with the Argentine Herpetology Association regarding new records of occurrences, the setting up of a national information network on bullfrogs (coordinated by the SAyDS Wild Fauna Directorate -DES-), and a full analysis of the species distribution across the country; b) an assessment of regulations governing farming and a proposal to supplement such regulations; c) a participatory process for developing control protocols and their validation in some of the invaded areas; d) a communication strategy developed as part of the National IAS Strategy's ECCP (Output 1.1.4).

Output 3.2.4: Diversity of amphibians in Argentina's wetlands protected against the invasion of bullfrogs, by implementing a national strategy for managing bullfrogs.
Target: National Strategy in implementation including: a) 100% of active and inactive farms and distribution of bullfrogs across the country surveyed; b) A proposal on supplementing the regulations governing bullfrog farms; c) control protocols validated; and d) a communication strategy coordinated with the ECCP, Output 1.1.4

3.2.5 Pilot on the Giant African Snail in the Paranaense jungle

The objective of this pilot programme is to validate the containment and/or eradication approach for an invasive land vertebrate. The feasibility of eradication will be assessed to eliminate risks for public health and the biodiversity in the Paranaense jungle, and losses in horticulture production. The latter is particularly serious for small farmers and control is expected to improve the living standards of the area's inhabitants. Key actors within this component include the inhabitants of Puerto Iguazu, horticultural farmers and health and agriculture agents. The pilot programme builds on past and current activities carried out by SENASA, the National Ministry of Health and the Ministry of Ecology of Misiones Province, vector control agents of the Department of Environmental Sanitation of the local municipality, the Argentine Coast Guard, the School of Natural Sciences and Museum, *Universidad Nacional de La Plata* university, the Iguazu National Park, and the National Institute of Agricultural Technology (INTA). Lessons learnt are disseminated and included in the communication processes of the National IAS Strategy at the national, regional and international levels, particularly in Paraguay and Brazil, the neighbouring countries that share the presence of this IAS.

Activities to be funded include the following: a) study on the density and distribution of these snails and feasibility of control and containment or eradication options; b) development of control and eradication protocols and selection of invasion outbreaks to be eradicated; c) application of communication measures (National IAS Strategy's ECCP) and control and eradication protocols, all in a participatory manner with the local population; and repetition of the study on density and distribution of outbreaks being tackled through eradication actions to monitor outcomes; and d) participatory formulation of a full eradication plan across the whole of Argentina.

Output 3.1.5: Biodiversity in the Paranaense jungle protected vis-à-vis the invasion of the **Giant African Snail**, by applying control and eradication measures, together with public health measures related to this IAS.
Target: Density and distribution of snails reduced by at least 25% compared to the baseline to be established at pilot programme start-up, applying control, eradication and communication measures (coordinated with the ECCP, Output 1.1.4).

3.2.6 Pilot on glossy privets in the North of Argentina, together with the Ocloya indigenous community

The objective of this pilot programme is to validate a containment and/or eradication process for invasive forest species, including coordination with the local communities and a gender approach, particularly with the indigenous peoples of Jujuy province. The pilot programme will include the participation of the Ocloya indigenous community and will contribute, moreover, to generate a model to support recovery of the structure and composition of native forests and their productive value, based on the community's work and participation and the use of the glossy privet's wood. Given the participation of an indigenous group that depends on what forests can offer them, this pilot programme has special characteristics for gathering experiences and lessons learnt, applicable to other local communities in Argentina and other countries facing similar forest IAS problems. The *yungas* (mountain jungles/cloud forests), characterized by wet mountain forests, have one of the most diverse biomasses in Argentina, and both their natural and cultural diversity, represent values of global relevance. These "restored" forests are not only richer in biological diversity but also more efficient in the medium and long-term for carbon sequestration and as climate change buffers, with clear connotations at the world level.

The project will finance: a) an analysis of the invaded area, including a density and distribution baseline, the participatory selection of priority areas for control and development of community programmes aimed at adaptation-based management; b) implementation of control actions, removing glossy privet; c) identification of native species suitable for restoring assisted vegetation, according to its traditional use and ecological functions, and the reproduction and planting of this species by the community; and d) monitoring of the outcomes of control and restoration actions, comparing the density and distribution of glossy privet with the baseline.

Output 3.1.6: Recovery of native forest vegetation species in Northwest Argentina (NOA) and of the livelihood of the Ocloya indigenous community, dependent on these native forests, by reducing the density and the area affected by the invasion of **glossy privet**
Target: At least 20 hectares under glossy privet control, resulting in a reduction of at least 50% in the density of glossy privet and assisted restoration with at least 1500 native plants, planted with community and gender participation approach.

Component 4: Development of the pilot programme for eradication of the American Beavers in Tierra del Fuego province, based on the governance of IAS

This component focuses on beaver control and eradication which is a high priority for the two countries affected by this IAS in these Patagonian islands. This project will address the Argentine islands of Tierra del Fuego Province, Antarctica and South Atlantic Islands. It will go side by side and will coordinate its actions with a similar project on the Chilean side, within the framework of a bi-national agreement between the Argentine Republic and the Republic of

Chile. It is very special since it will be implemented in the only province that is an island and is bi-national in scope, so as to avoid the impact of this species on the mainland.

This component will support the implementation of a Pilot Programme on eradicating beavers in seven different demonstration units (DU, Table 2.2 below), backed by a sound governance and operational management system, by capacity-building and the implementation of a control, monitoring and prevention system to avoid re-invasion. The areas were identified through a participatory process in which provincial agencies working directly on the matter participated, as well as the academic-scientific world and the landowners in rural areas. Selection criteria were as follows: the potential to generate new technical capabilities and lessons learnt; different situations regarding jurisdiction and property of land in DU; invasion density (Annex 7.f); different types of ecosystem; and feasibility to eradicate and avoid reinvasion (For further information on the selection process see Annex 7.a)

Table 2.2: Demonstration Units for eradicating beavers and recovering ecosystems

Area/Basin	**Public Land**	**Private Land**
Río Olivia river basin –River Lasifashaj Source	Tierra del Fuego National Park – provincial public land – Tourism and recreational Reserve Tierra Mayor	
South of Tierra del Fuego National Park	Tierra del Fuego National Park.	
Rivers Mimica, Inn, Indio	*Corazón de la Isla* Provincial Reserve	
River Valdéz sub-basin	River Valdéz Provincial Reserve	
River Malengüena	Provincial public land on Mitre Peninsula. Estancia Policarpo farm.	Estancia María Luisa
Asturiana Stream		Estancia Rolito Estancia Pirinaica
Gamma Stream		Estancia Sara

This component is the second phase (capacity-building for eradication) of the "Strategic Plan of the Project for eradicating beavers in the South of Patagonia", agreed upon between Chile and Argentina, and it will be implemented in close coordination between both countries. Its overall approach follows the guidelines of the Feasibility Study (Parkes et al. 2008) as regards the basic techniques to be used for removing beavers from each colony. A combination of existing techniques is expected to be enough to achieve eradication of a colony unit. Nonetheless, some of these techniques must be "adapted" to the local small-scale geographic environment or affected environment and/or developed from scratch, and adjusted to the social status of surrounding communities. GEF resources will not be used for any eradication action in the field. Such actions will be funded by the private sector and by government co-financing. Furthermore, international standards will be applied such as the Agreement on International Humane Trapping Standards (AIHTS), and the EU directive in force since 1991.

4.1.1 Governance and management structure for the Beaver Control and Eradication Programme

During the project's preparation a governance and management structure proposal was developed (Annex 7.b) and comprises the following:

a) An inter-institutional committee with members representing the interests of institutions/agencies responsible for managing natural resources in TDF, and those of the Pilot Programme's co-funders (SAyDS, SDSyA-TDF, APN, General Provincial Directorates for Forests and Water Resources, National Forest Directorate, 1-3 representatives from research institutions (CONICET, *Universidad Nacional de Tierra del Fuego*, INTA, CIEFAP). The committee shall play a political-strategic role, and shall control programme management, ensuring coordination among the different participating institutions. One of its tasks will be to approve the Programme's Governance and Management System. After completion of the GEF project, this committee shall remain a part of the Bio-security Management and Governance System (re-invasion monitoring and mitigation) and of the Bi-national Eradication Programme;
b) A team for managing the programme: a general manager responsible for coordinating the team and the different programme sub-components and outputs, as well as for monitoring and preparing progress reports every six months; three heads of the operational teams in charge of eradication at DUs; and three persons responsible for logistics, supporting DU operations. Furthermore, the team will be assisted by someone responsible for PR and communications, and someone responsible for spatial data/GIS and an administrative assistant;
c) A social participation group (Group of "key" social actors) representing the actors directly affected and involved in the Pilot Programme (owners of farms, forestry sector, sports fishing, tourist sector representatives, etc.). Some of their functions are those of receiving information on the Programme's progress and reporting to the Inter-Institutional Committee on topics of interest. The composition of this Group can be changed and enriched as the Programme develops. Just like the Inter-institutional Committee, after the GEF project is completed, this Group should keep on working as a part of the Bio-Security Governance and Management System (monitoring and mitigation of re-invasion) and the Bi-national Eradication Programme.

Output 4.1.1: Governance and management structure for the beaver control and eradication Programme, developed and operational
Targets: a) An Inter-Institutional Committee for the programme's Governance and Management in place, holding at least two meetings a year, and a Governance and Management System for the eradication pilot programme adopted by the Committee; b) Team for managing the programme established and operational; and c) social participation group in place and operating.

4.1.2 Operational Plans and Eradication Protocols for Demonstration Units

During the project's preparation, draft Operational Plans and Eradication Protocols (POE in the Spanish acronym) were outlined for each of the DUs (Annex 7.c). POEs include the following: a description of the ecology and of beaver invasion, objectives for DUs, beaver eradication approach, methodologies and activities; schedule and logistics for the systematic removal of colonies and traps; disposal of dead animals; verification of eradication and establishment of a bio-security system; needs for equipment; staff and consultations and authorizations; risks and their mitigation measures. During the project's first year of implementation, baseline studies will be carried out on beaver population density in each DU and the level of degradation of the ecosystem. Based on these studies, the POE will be updated and agreements will be signed between SAyDS, SDSyA-TDF, and other relevant institutions and owners of the DU plots of land. Updated POEs will also include biodiversity recovery indicators (forest, physical structure of river beds, grassland recovery) for effectively monitoring the application of POEs.

Likewise, during the first year, detailed protocols will be developed for eradicating beavers from different ecosystems and topographies.

Output 4.1.2: Operational Plans and Eradication Protocols (POE) for each of the Demonstration Units (DU), under different property regimes and invasion levels: 1) three DUs for eradication in private property lands; 2) three DUs for eradication in Protected Areas; and 3) one DU for eradication in mixed private-public property land.
Targets: 7 POE for DUs including: a) inter-institutional agreements and agreements with other stakeholders for the implementation of the Plan; b) baseline on beaver population density in DUs and level of degradation of the ecosystem; c) biodiversity recovery indicators (forest, grassland, and physical structure of riverbeds) for monitoring the effectiveness of the implementation of the Plans.

4.1.3-4 Capacity-building for managing and eradicating beavers

During project preparation, a capacity development plan was outlined for implementing an eradication pilot programme (Annex 7.d), including eight modules executed under this sub-component. Each training event/course ends with an assessment for monitoring the results thereof. The eight modules are as follows:
Module 1: Invasive alien species, related problems and management. Trainers: APN-CADIC-UNTdF. Trainees: local sectoral officials, civil society sectors concerned with this matter, productive sectors, and local trainers.
Module 2: Tierra del Fuego beavers, related problems, management history to date. Trainers: SDSyA-TDF, SAyDS, APN. Trainees: local sectoral officials, civil society sectors involved with the matter, productive sectors.
Module 3: Tools for the effective eradication of beavers (techniques, safe use, maintenance, trap design, etc.). Train the Trainers modality: CADIC-APN, external experts. Trainees: Heads of operations, Eradication verification groups, Special field agents, General Manager, operational-technical field agents for setting up operational-technical groups.
Module 4: Data collection, recording and processing. Trainer: Person in charge of spatial data, GIS and his/her team. Trainees: Heads of Operations, Person in charge of Logistics, Eradication verification group, General Manager, Field staff in charge of monitors.
Module 5: Basic Course on First Aid, Survival and Contingencies. Trainer: Civil Defense. Trainees: Operational-technical field agents, Verification groups, Person responsible for logistics and his/her collaborators.
Module 6: Communications. Trainer: APN, the Province. Trainees: Heads of Operations, Person in charge of logistics and his/her collaborators.
Module 7: Operational monitoring and organization in support of eradication. Trainer: General Manager. Trainees: Person in charge of logistics and Heads of Operations who will train operational-technical groups, Eradication Surveillance Groups.
Module 8: Bio-security. Trainers: APN-CADIC-UNTdF, Leaders of Surveillance Groups. Trainees: local government agents, third sector, private sector, and agents in charge of bio-security who will act as trainers in the future once GEF completes its activities.

In Year 1 of the Project, a Geographic Information System (GIS) will be developed as well as beaver population density maps in TDF, particularly at DUs.

Output 4.1.3: Capacities strengthened for managing and eradicating beavers, including human resources and instruments for planning, implementation and monitoring.
Targets: a) 150 officials from provincial institutions, the authorities and private land owners, forestry, oil and livestock sectors have the capacity to support POE implementation (trainees

must obtain an average score of 75% in the final test); and b) Geographic Information System (GIS) and beaver population density maps for TDF developed, particularly for the DUs.

Output 4.1.4: Trappers, hunters and supervisors have the appropriate capacities for the effective application of eradication protocols.
Target: 150 – 300 trappers, hunters and supervisors trained in protocol application (trainees should obtain an average score of 75% in the final test).

4.1.5 Implementation of Operational Plans for eradication in Demonstration Units

The implementation of POEs (Annex 7.c) at DUs are distributed as follows: four (4) POEs implemented in year one, at the DUs in Olivia and Tierra Mayor, South of the Tierra del Fuego National Park, Asturiana Stream and Rivers Mimica, Inn and Indio, and three (3) POEs implemented in year two 2 at DUs Valdéz River Sub-basin, Gamma Stream, and Malengüena River. POE implementation activities will be grouped into three general components: systematic removal of colonies, verification of eradication, and bio-security (Output 4.1.6). **All activities related to beaver sacrificing (within the framework of eradication activities) will be funded through co-financing and not with GEF resources.**

For removal purposes, DUs will be divided into working areas assigned to operational-technical groups and hunters, and removal tasks forces will be deployed for extracting all beavers from each and every area so as to reach a "zero density" beaver status. Staff will be hired on an objectives-based level (that is to say, with the purpose of achieving a "zero density" beaver status and not by working month or fraction). This allows a removal pressure in line with the objectives. Part of the staff may come from institutions related to this activity and with which agreements have been signed. **Only techniques that meet the humane trapping standards (AIHTS standards) will be used for beaver removal,** which ensure immediate death of beavers without any suffering whatsoever, as is the case of killing traps of the Conibear 330 type and the use of firearms and/or compressed air gun. Furthermore, it is necessary to ensure that the disposal of dead animals does not cause water pollution problems. Dead animals are taken out of the water and placed at least 30 meters away from the watercourse, out of the sight of carrion birds, either within the forest or under bushes so they cannot be seen. (Annex 7.h)

The proposal is to use sniffer/hunting dogs. They are an essential tool for detecting animals, above all in areas with a low population density and in situations in which the presence of the animals is less evident (flatland watercourses). A dog-based programme has the peculiarity that, once it is installed, animals must work practically every day so that they maintain their skills to do the job properly and, therefore, this entails an ongoing cost. Helicopters are another tool to detect beaver colonies. Dogs and helicopters could also be used as a part of the bio-security systems (Output 4.1.6).
After beaver removal, an independent team moves into the working area to verify removal. In this regard, an objective evaluation system will be designed to assess efficiency in the fulfillment of the tasks assigned to each operational group. This system for verifying eradication will make sure that requirements and guidelines of the Plan of Action have been met, and that all safety measures have been borne in mind, as well as environmental preservation guidelines, and specifically, that the requirement of having a "zero density" of beavers has been achieved. The "verification team" must comprise technical-operational staff, with broad experience in managing beavers and, as capacities are built, this team can include other members so as to upgrade eradication capabilities. At first, this team will not only verify

but also evaluate operational design to identify potential needs for change and propose alternatives.

Output 4.1.5: POEs implemented in DUs.
Target: 7 POEs implemented in seven DUs

4.1.6 Bio-security systems (control, monitoring and prevention of re-invasion)
Bio-security entails the implementation of measures to avoid re-invasion right from the beginning of eradication operations and after the DUs are declared "zero density" areas (Annex 7.e). This includes capacity-building to detect beavers in low density areas, to provide rapid responses when survivors and/or immigrants are detected, and to generate decision-making rules on when eradication can be considered a completed task, with a given error margin. Efficacy of the implementation of different surveillance regimes/designs will be assessed (design and efforts to be made, number and type of tools to be used, frequency of surveillance visits, ways to dispose of beaver bodies, different activities by sniffer dogs, etc) to maintain the "zero density" objective for beavers in the pertinent basin sections.

The activities include the establishment of a database on the actions of the Bio-security Plan for the whole Pilot Programme. Finally, they comprise studies to show the recovery of physical environment elements and of ecosystem biodiversity, monitored through ecosystem recovery indicators (see goal indicators under Outcome 4.1). These studies will be financed partly by the GEF grant. Other sources of funding for these activities will be ongoing or future projects, and resources from the provincial institutions involved.

Local co-financing for this sub-component is very important for the sustainability and permanence of the bio-security system upon project completion. This also means including private owners when possible, who can provide logistic and operational support for bio-security tasks and participate in the monitoring process.

Output 4.1.6: Permanent systems for control, monitoring and prevention of re-invasion established including: bio-security plan; systematic monitoring of ecosystem recovery indicators (see Outcome 4.1); and sustainable funding.
Targets: a) At least 160 persons trained in bio-security and monitoring of re-invasion; b) Database on actions of the Bio-security Plan for the whole Pilot Programme; and c) 121,280 hectares in 7 DUs under permanent control, monitoring and prevention of re-invasion, keeping beaver population at a level with no adverse impacts on the native forest and peat bog ecosystems.

4.1.7 Communication strategy on beavers as an IAS
The purpose of this sub-component is to ensure the local population, tourists and other stakeholders in Patagonia's ecosystems favour and support the beaver eradication programme, recognizing the impact on and threats to the ecosystems and native biodiversity of the region posed by this IAS. In cooperation with the National IAS Strategy's ECCP (Output 1.1.4) a communication and awareness raising strategy will be implemented on the beaver issue. Likewise, during the fourth year of the project, the lessons learnt and outcomes of the eradication pilot programme will be systematized in broadly disseminated publications and will provide feedback for the National IAS Strategy.

Output 4.1.7: Increased knowledge and understanding of the TDF population on beaver invasion and the control measures at the end of Project through the implementation of a communication strategy.
Target: a) Brochures and webpage on the eradication pilot programme prepared; and b) Lessons learnt and outcomes of the Beaver Pilot Programme, systematized and published.

4.2.1 Exchange of experiences and coordination of the learning process between Chile and Argentina on beaver control and eradication

It is of utmost importance for all Component 4 activities to be implemented in a coordinated fashion and under bi-national exchanges between Chile and Argentina. With a view to achieving the above, at least one annual bi-national workshop will be held for exchanging practices and outcomes, supplemented with exchange visits. Furthermore, to provide feedback into the National IAS Strategy, a national workshop will be organized to present the outcomes of the eradication pilot programme, and to establish bio-security systems during the third year of project implementation. This workshop will also be useful for discussing options for financing the bi-national eradication plan.

Output 4.2.1: Chile and Argentina exchange experiences and coordinate the leaning process on the Pilot Programmes on control and eradication, which processes will also inform the National IAS Strategy.
Target: a) Three (3) bi-national workshops to exchange experiences and coordinate the pilot learning process; and b) One (1) national workshop for providing feedback to the National IAS Strategy.

4.2.2 Governance framework and Bi-national programme on beaver eradication

Since the main objective of this component is to build the necessary capacities to prepare the bi-national massive eradication programme and the critical road map for its implementation, during the third and fourth year of the project, bi-national workshops will beheld to systematize experiences and outline and agree upon the Programme. The pilot phase on the Chilean side will include a study of potential socioeconomic impacts on the spread of beavers across South America, and a strategy for resource mobilization for the massive eradication programme. Likewise, during the last two years of the project, it is important for Argentine authorities to actively seek the necessary resources to finance the programme on the Argentine side.

Output 4.2.2: Governance framework and Bi-national beaver eradication programme agreed upon.
Target: At least two bi-national workshops will have led to an agreement on the Governance Framework and Bi-national Programme.

Component 5: Project monitoring and evaluation and information dissemination

The objective of this component is to ensure systematic progress monitoring of the project's outcomes and outputs, including its annual goals, as established in the Project's Results Framework (Annex 1). Furthermore, the purpose is to broadly disseminate lessons learnt and good practices that can be used within and outside the country when faced with similar IAS threats. Sections 4.5 and 4.6 below include a breakdown of activities and the project monitoring and evaluation plan, including assignment of responsibilities.

Output 5.1.1: Project monitoring system operational, providing systematic information on progress in achieving Project outcomes and outputs.

Target: Eight (8) semi-annual Project Progress Reports (PPR).

Output 5.1.2: Mid-term and final evaluations
Target: Two (2) evaluation reports

Output 5.1.3: Good practices and lessons learnt from the Project disseminated
Target: Good practices and lessons learnt from the Project disseminated

2.5 GLOBAL ENVIRONMENTAL BENEFITS

Global Environmental Benefits (GEB) will result in less biodiversity loss in globally significant ecosystems in Argentina, threatened by IAS. This includes maintaining the resilience of the affected ecosystems and the strengthening of conservation areas and biological corridors, contributing to the recovery of ecosystem functions and services, such as soil fertility, availability of water resources of ecological and/or productive value, CO2 balance, and conservation of the habitats of different plant and animal species. Achievement of GEB will also contribute to reducing poverty and improving livelihoods, particularly of the indigenous and peasant communities, given their direct dependence on Native Natural Resources.

Specifically, expected project GEB are the following:

- Coastal and marine ecosystems protected against invasive alien species through early detection and rapid response measures .

- Recovery in progress of terrestrial ecosystems and biodiversity highly or potentially affected by 6 (six) high-risk IAS already established in the country, and risks for health and the forestry, tourist and agricultural sector duly mitigated, by applying containment and/or eradication protocols.

- Native forest and peat bog ecosystems under effective control of the American Beavers in Tierra del Fuego (TDF) and affected or endangered biodiversity in recovery in 121,280 ha.

2.6 COST EFFECTIVENESS (alternative strategies and methodologies considered)

The project's cost-efficiency and effectiveness will be achieved by systematically involving several actors related to IAS in the drafting and implementation of the National IAS Strategy, at the national, provincial and local levels. For instance, the involvement of SENASA will allow building on its existing experience, human resources and system for risk mitigation and control to avoid the introduction of IAS pests affecting agriculture and the forestry sector, and early action should the species manage to pass the checkpoints. The participation of the Border Patrol, Customs, PSA (Airport Police) and PNA (Coast Guard), through training, and of the population at large, through a communication strategy, will also ensure the efficient use of human resources, infrastructure and resources already available, and greater efficacy in avoiding the introduction and supporting early detection and action. For instance, training and awareness-raising among people with knowledge on natural history and presence in natural or semi-natural environments, such as birdwatchers, sports fishermen, park rangers, fauna caretakers, caretakers of the environment, as well as biological scientists and ecologists will

enhance the group of observers in the prevention and early warning system in a cost-efficient manner.

In order to share resources and costs at the international level, the Argentine information system on IAS (InBiAr), interconnected with IABIN, follows standards that can be shared with GISD, IUCN, GISIN and GIASIP. This allows easy access to IAS information and risk analysis already carried out in other countries not to duplicate efforts. In the same manner, integration into an existing information network of research institutions, provincial and national governments and Protected Areas will ensure the use of existing information in a cost-efficient and effective manner for decision-making on IAS management.

On the one hand, the National IAS Strategy shall place great emphasis on avoiding the introduction of Alien Species that can become invasive and on the early detection and rapid response. This is a lot more cost-efficient than containment, management and, ultimately, eradication when species are already established in the country.

On the other hand, six (6) IAS have been selected among those well-established in the country and considered a priority because of their impact on globally significant native biodiversity and on socio-economic conditions, as well as because they represent different scenarios and situations in the management of biological invasions, to validate protocols and communication and awareness-raising strategies for the management, containment and/or eradication of these species. These interventions are being carried out to learn about the cost-efficiency management practices and techniques for the IA species that are still not too spread out so as to not allow their control, containment and/or eradication.

The Patagonian beaver is a special case. Although it has spread out quickly in the last seven decades since its introduction, and its eradication is costly, losses in economic terms, in ecosystem services and in biodiversity in the future will be a lot more costly if this IAS manages to establish itself on the South American mainland. Coordination with Chile and the bi-national phased process will ensure cost-efficiency and effectiveness of actions. During each phase, an extra step forward is given in mapping, monitoring and learning as regards cost-efficient and technically effective eradication methodologies. The phase, supported by this project, is that of learning from several pilot programmes how to manage and implement a systematic eradication and avoid re-invasion in a cost-effective manner in both countries before promoting a full eradication programme.

2.7 INNOVATIVENESS

The project is innovative within the Argentine context where so far there have been isolated initiatives to manage IAS with no National IAS Strategy integrating all aspects, instruments, capacities and actors related to this issue. For the first time, Argentina will have a coordinated framework for managing IAS.

Two particularly innovative aspects which will be promoted by the project are the introduction of payment for environmental or ecosystem services and voluntary agreements with sectors facing a high risk of introduction and spreading of IAS, so as to achieve long-term economic sustainability for the National IAS Strategy.

An important precedent in Argentina is National Law No. 26,331 on *Minimum Environmental Protection Standards for Native Forests*, and the National Fund for Enriching and Preserving

Native Forests, allowing the construction and integration of financial mechanisms like the payment for environmental services (services for protecting the country's ecosystems against IAS) in support of the National IAS Strategy. An analysis will also be financed for identifying options to include good IAS prevention and warning practices within payment of environmental services (PES) approaches in river basins, in FSC certifications, in organic fish farming, environmentally-friendly tourism and in Corporate Social Responsibility (CSR) schemes.

Under the principle of internalization of environmental costs by users and those responsible for the risks that can have a negative impact, the project will seek to include good practices for IAS management and dispersal risk prevention in the insurance regulations or environmental risk charges. Also, by fostering and adopting voluntary codes of conduct that avoid the introduction and spread of IAS by actors/associations related to flower growing and gardening, landscape architects, zoos and botanical gardens, vets and pet shops promoting, in an innovative manner, responsibility, awareness-raising and preventive actions in those sectors that run a high risk of IAS introduction.

Finally, Component 4 on beaver management and eradication will be innovative *per se*, since at global level there are very few experiences with bi-national processes for controlling and eradicating a mammal species in an island ecosystem, including difficult-to-access and remote areas.

SECTION 3 – FEASIBILITY (fundamental dimensions for high quality delivery)

3.1 ENVIRONMENTAL IMPACT ASSESSMENT

The formulation and implementation of a National IAS Strategy (Component 1), and the strengthening of the pertinent regulatory framework (Component 2) will have a positive environmental impact since the purpose is to protect biodiversity and native ecosystems, as well as the processes for generating environmental goods and services. Furthermore, containment and/or eradication of IAS well-established in the country and a priority because of how they alter native ecosystems and biodiversity, will favour the system's resilience once the species have been eradicated or contained (Components 3 and 4). Anyhow, during the containment and/or eradication process some minor issues could crop up and require special attention and mitigation measures as to the potential negative impact of using certain containment and/or eradication equipment and practices. An analysis of the potential impact and mitigation measures will be included in the pertinent operational plans for each case, also taking into account the national and/or provincial environment regulations. After containment and/or eradication has been completed, special attention will be paid to ecosystem recovery, which could include modifications or readjustments to watercourses affected by species such as the American beaver, and bare soil in areas in which IAS have fully displaced autochthonous vegetation.

The general Regulatory Framework for Environmental Assessment is provided for by the National Constitution and National Environment Law No. 25,675, and by provincial laws in each jurisdiction. Moreover, it is necessary to consider specific laws for each case as, for instance, those on forests, water resources, land use, protected areas, etc. Within this context, it is pertinent to consider regulatory decrees and resolutions of agencies such as COFEMA, SENASA, Ministry of Agriculture (and its predecessor's –SAGPyA- previous regulations), according to each field of action.

During the Environmental Assessment process, issues, impact and risks related to pest control must be considered, insofar as possible promoting biological or environmental methods for pest control that are ecological in nature (integrated pest management –IPM- in agriculture projects, and integrated vector management –IVM- in public health projects) reducing the use of synthetic chemical pesticides. The Agro-chemical and Pesticides Annex of the National IAS Strategy will include a table on agro-chemical substances and active ingredients for plant and animal health that are banned or of restricted use in the Argentine Republic.

The over-use of pesticides will be avoided and the project will promote environmentally-friendly pest control. If it is necessary to use agro-chemical substances and/or pesticides, specific laws should be considered such as National Law No. 18,073 which bans the use of certain pesticides. Pesticides should be acquired on the basis of an evaluation of the nature and degree of related risks, taking into account the proposed use and foreseen users. Products that include formulae classified under WHO classes IA and IB should not be purchased, and neither products manufactured under Class II formulae. Pesticides must be applied by specialized and duly trained staff, using proper equipment and wearing appropriate gear, who must follow the recommendations and minimum standards described in FAO's International

Code of Conduct on the Distribution and Use of Pesticides (Rome, 2003)[74]; and purchase only pesticides manufactured, labeled, handled, stored, applied and eliminated pursuant to acceptable standards set forth in the FAO guidelines for packaging and storage of pesticides. (Roma, 1985).

The environmental evaluation will also consider social aspects, especially those related to guaranteeing gender equality and that of local indigenous and non indigenous communities. Furthermore, it shall appraise aspects related to occupational or workers' safety. In this regard, it will be essential to keep the involved actors informed, in accessible places, in a clear manner and in a language that they can understand.

In view of all the above, **this project will be ranked in Category C of the FAO/EIA system and, therefore, a general environmental impact assessment will not be required,** only a few supplementary analyses of the slight potential environmental impact related to each containment and/or eradication pilot programme.

3.2 RISK MANAGEMENT

Project risks were identified and analyzed and corrective measures were established during project design and preparation. With FAO support and supervision, SAyDS will be responsible for the daily management of these risks and the efficient implementation of corrective measures. SAyDS will moreover be responsible for following up on the efficiency of corrective measures and for adjusting mitigation strategies, as necessary, as well as for identifying and managing potential unforeseen risks during the project's development, in cooperation with FAO, provincial governments and other project partners.

Project Progress Reports (PPR, see Section 4.5.3 hereunder) are the main instrument for following up on and managing project risks. PPRs will include a section on systematic follow-up of the identified risks and of corrective actions set forth in previous periods, and another section on the new potential risks that require special attention, their classification and corrective actions, including those responsible for such actions and the dates for their implementation. FAO shall carry out a monitoring of project risk management and the necessary follow-up, providing support for the adjustment and implementation of risk mitigation strategies. The submission of information on follow-up and risk rating will also be included in the Annual Project Implementation Report (PIR; see section 4.5.3 hereunder) to be prepared by FAO and sent to the GEF Secretariat.

3.2.1 Risks and mitigation measures

Table 3.1 summarizes all identified risks, their rating and the corrective measures included in the design of project components.

[74] http://www.fao.org/agriculture/crops/temas-principales/theme/pests/pm/code/es/

Table 3.1. Project risks, their rating and corrective measures

RISKS	(LOW, MEDIUM, HIGH)	MITIGATION MEASURES
Component No. 1 Strengthening institutional capacities at the national and provincial levels for managing IAS		
Sub-component 1.1.1 National information system on IAS		
Scarce participation of specialists in providing data for the information system	**M**	- Commitment of scientific associations to foster the participation of their members through regular information bulletins. - Participation in scientific congresses to facilitate communication among specialists. - Explicit recognition of the source of data and research results in the information system (each datum linked to its provider)
Information system not maintained in the long term	**L**	- Reduction of maintenance costs, by hosting the system on the SAyDS website. - Management of the database within the *Universidad Nacional del Sur*, formalizing the institutional commitment through a letter of agreement.
Sub-component 1.1.2. Official IAS list		
Conflicts with productive sectors due to the inclusion of economically significant species on the official IAS list.	**H**	- Definition of categories allowing the controlled use of species when the environmental and socio-economic impact can be reduced to acceptable levels.
Sub-component 1.1.3.a National IAS Strategy, chapter on Prevention of IAS introduction		
Difficulties to identify IAS at checkpoints/ entrance points.	**M**	- Creation of a network of experts in taxonomy who can be consulted to confirm species identification (see Sub-component 1.1.3.b) - Training courses
Operational difficulties of control agencies to include IAS monitoring among their responsibilities.	**M**	- Drafting of a protocol to allow the identification of the most risky vectors and organisms.
Sub-component 1.1.3.b National IAS Strategy, chapter on Systems and Protocols for early detection and rapid response **Sub-component 1.1.3.c** National IAS Strategy, chapter on prioritization, control and eradication systems for national and provincial Protected Areas		
Difficulties of staff to attend training sessions	**M**	- Training course/s delivered in the different regions. - Adjustment of training material for distance learning and posting on the SAyDS website. - Generation and dissemination of a written protocol (handbook) for reaching out to staff that cannot participate in the courses
Sub-component 1.1.4. Communication strategy for the National IAS Strategy		
"Noises" in communication and problems in circulating information, and lack of communication among institutional actors	**L/M**	Federal information system linked to the Federal IAS Network and to the national working group.
Weakening in the long term of the provinces' commitment or agreements as regards communication	**L/M**	Ongoing work to install the topic within COFEMA

RISKS	(LOW, MEDIUM, HIGH)	MITIGATION MEASURES
Social resistance with respect to the implementation of containment and/or eradication pilot programmes (e.g. problems with "charismatic" species or management/hunting tools)	**M** (depending on each pilot programme)	Strategy including information and awareness raising on the IAS and its impacts – can reduce propagation of this resistance although it will be difficult to reverse the opinion of the sectors that ideologically do not accept something, for instance, the selected management tool.
Low level of participation of civil society agencies.	**L**	Reinforce actions foreseen for this group. Evaluate the possibility for providing incentives.
Under-estimation of the problem by teachers and, consequently, lack of understanding and work on the topic in classrooms.	L	Consider an incentives' programme through a national competition rewarding the best classwork on IAS and a study tour to pilot programme areas.
Component No. 2 Strengthening regulatory frameworks and financing mechanisms in support of the National IAS Strategy implementation		
Lack of coordination among relevant institutional actors, using different approaches and strategies; contradictory actions and resource overlapping.	**M**	Set up a federal network on IAS and a National Working Group as coordination mechanisms, and facilitate regional coordination bodies within COFEMA.
Lack of involvement of the private sector for funding the National IAS Strategy.	**L**	Joint work with the private sector and civil society, workshops, communication strategy, publications, design of financing mechanisms in regulatory instruments.
Lack of inclusion of the IAS topic on the public and legislative agenda, lack of consensus for a Law on Minimum Standards.	**M**	Regional and national workshops with relevant actors for consensus-building, workshops with legislators, communication strategy, publications
Lack of inclusion of the IAS topic on the MERCOSUR public agenda.	**L**	Argentina to promote a MERCOSUR workshop on IAS.
Component No. 3 Validation and implementation of protocols for controlling IAS, prioritized by taxonomic categories and ecosystems, included in the National IAS Strategy		
Sub-component 3.1.1 System for IAS early detection, dispersal prevention and rapid response at ports and surrounding areas		
Difficulties for detecting species in low-density areas	**H**	- Analyze bio-physical variables for detecting critical points at which chances of establishment of IAS are higher.
Difficulties for identifying any detected marine species.	**H**	- Set up a network of taxonomy experts - Foster lines of research in the taxonomy of marine organisms. - Train provincial and third-sector organization technicians, farmer organizations, etc. - Dissemination campaigns on emblematic species.
Sub-component 3.2.1. Pilot on red-bellied tree squirrels and other potential IAS used as pets		
Resistance of pet shops to disseminate contents that could discourage purchase of wild animals.	**H**	- Meetings with trader chambers and vet associations, promote adoption of voluntary codes of conduct including information to customers on responsible possession of these species and the risk of releasing them, list of low-risk species, etc. - Awareness-raising and massive dissemination campaign.
Resistance of groups that defend animal	**H**	- Hold meetings with group representatives and

RISKS	(LOW, MEDIUM, HIGH)	MITIGATION MEASURES
rights to any information highlighting negative aspects of the species		explain concern about the impact of the species on wild fauna. - Awareness-raising and massive dissemination campaign.
Sub-component 3.2.2 Pilot for Didymo Algae in Río Negro, Neuquén, and Chubut provinces		
Lack of implementation or failure in self-cleaning actions by sports fishermen.	**H**	- Carry out intensive communication and oversight campaigns. - Strengthen local authorities in prevention matters.
Failure in detecting blooming algae as early as required to allow for control actions.	**M**	- Generate a telephone or web reporting system, etc, on algae blooming, supported by outreach campaign. - Inform conservation agents about the characteristics of algae blooming.
Existence of other important spread vectors, besides fishing and navigation gear (water used to fight forest fires, fish farming, wild fauna, livestock)	**M**	- Intensify research work aimed at identifying and managing these vectors.
Sub-component 3.2.3. Pilot on tamarisks (salt cedars) in the Cuyo region		
Invasion of cleaned areas and/or re-invasion from nearby outbreaks.	**M**	- Implement monitoring and repetitive control measures. - Detect and neutralize potential sources of reproduction outside the controlled area.
Resistance to tree felling by a given sector of society.	**M**	- Carry out information actions on the reasons and scope of measures undertaken.
Sub-component 3.2.4 Pilot on bullfrogs at the national level		
Difficulty to detect new invasion outbreaks	**H**	- Carry out intensive communication campaigns among experts, provincial authorities and key actors (SENASA, INTA, Farmer Associations, etc.)
Sub-component 3.2.5. Pilot on the Giant African Snail in the Paranaense jungle		
Re-invasion of snails from Brazil / spread of snails outside the Puerto Iguazu area	**H**	- Develop intensive dissemination campaigns to promote the reporting of snails by the inhabitants. - Set up a telephone line or web reporting system on snail detection across Argentina, supported by the dissemination campaign. - Establish agreements with Brazil/Paraguay to establish a buffer control area along the border. - Train staff of border control agencies.
Sub-component 3.2.6. Pilot on Glossy Privets in the north of Argentina, with the Ocloya indigenous community.		
Re-invasion of glossy privet	**H**	- Eradicate seed trees from the surroundings. - Develop schemes for monitoring, detection and felling of young trees.
Colonization of restored environments by opportunistic IAS	**L**	- Monitoring of vegetation recovery. - Supplementary control actions
Component No. 4 Development of the pilot programme for eradication of the American Beavers in Tierra del Fuego province, based on the governance of IAS		
Standards of humane trapping do not	**M**	Only methods and equipment included in the

RISKS	(LOW, MEDIUM, HIGH)	MITIGATION MEASURES
include snare traps		humane trapping standards are used.
Problems regarding access to private land	**L**	Agreements signed with privates before starting operations, communication strategy and follow- up of the topic.
Undesired effects on native species more than expected (for instance on the Southern river otter)	**L**	- Implementation of environmental safeguards - Use of specific techniques
Bio-security problems in "clean" areas	**M-H** (dependng on the selection of pilot sites).	- Operation Surveillance and Bio-security stages for each Pilot Project planned in great detail to make all necessary efforts for appropriate surveillance. - Contingency Plans (during and after implementation of GEF project) designed and funded.
Risks of sediment accumulation, flooding and erosion due to dam failure	**L-H** (depends on the selection of pilot sites).	- Breaking of dams in certain cases (see Operational Plans for Pilot Sites)
Risk due to the presence of carrion	**M**	- Impact will be restricted in time and space. Each colony lodges an average of six animals and is spread out across the territory, so no accumulation of animals will be found.
Variations in currency value	**M**	- Identify critical stages/activities that must have enough funding
Problems in having counterpart funds available as per the budget	**M-H**	- Foresee and define alternative options.
Delay in eradication operations due to bad weather. E.g. loss of efficiency especially in the case of helicopter use, increasing costs.	**M**	- Foresee appropriate weather data and include this variable in a careful planning, "generously" considering time frames
Equipment failures	**L-M**	- Previous testing, spare parts stock
Lack of capacity or difficulties to hire and/or recruit staff.	**M**	- Search for and training of staff during the early stages of the Project.
Pressure groups such as animal welfare groups, tourism businesspersons, furriers, can affect the project and its scope, leading efforts not to be centered on essential tasks.	**M-L**	- Environmental safeguards included in a protocol and duly implemented. -Communication Strategy foreseen -Selection of tourist attraction pilot area -Planning specific activities with actors related to the furrier business
Loss of support by owner/staff of the farm on which the Pilot Project is being implemented.	**L**	- Very carefully select site with the support and agreement of the farm's owner and the support of the staff -A communication plan
Risks due to changes in the Province's political management	**L**	- Commitment towards the beaver problem is long-standing, and is supported by a bi-national agreement with Chile. - The agriculture and aquaculture sector claims a solution to the problem.

SECTION 4 – IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

4.1 INSTITUTIONAL ARRAGEMENTS

SAyDS, in its capacity as *National Environmental Authority* and focal point for the CBD, will be responsible for project implementation. FAO will act as GEF implementing agency. Other important participants will be the following: environmental authorities in the Provinces and in Buenos Aires City; APN (Park Admin); provincial parks and natural reserve agencies. Provincial agencies will be co-executors of the containment and/or eradication pilot programmes (Component 3), and SDSyA-TDF will be co-executor of the beaver eradication component (No. 4).

SAyDS is GEF's operational focal point for Argentina and as such is responsible for coordinating GEF resources for the programme, and for supervising the GEF Project portfolio in Argentina, in cooperation with GEF implementing agencies and partners in project execution. Its specific responsibility within the project as GEF focal point will be to monitor the Annual Project Implementation Review Report (PIR) and to participate in the project's mid-term review and its final evaluation.

SAyDS is placed within the structure of the Chief of Cabinet Ministry, the President's Office, and is the National Environment Authority. The following are among its relevant responsibilities with regard to this project: i) assist the Chief of Cabinet Minister in implementing the environmental policy, including technical aspects; ii) strategic planning of environmental policies and programmes, and coordination of environmental management activities; iii) participate as a member on the Federal Environment Council (COFEMA) and coordinate CONADIBIO and its technical sub-committee on IAS (STEEI); iv) participate in environmental preservation, protection, defense and improvement, in implementing sustainable development, in the rational use and preservation of natural resources –renewable and non renewable-, in the environmental preservation of natural and cultural legacy and of biological diversity aimed at achieving a healthy environment, balanced and suitable for human development; v) participate in the proposal and outlining of regulatory regimes to allow a legal-administrative instrumentation of environmental management, environmental zoning of the territory, conservation and rational use of natural resources, and environmental quality; vi) participate in the establishment of methodologies for assessing and controlling environmental quality and risks; vii) participate in the establishment of a public information system on the status of the environment and on the developed policies; viii) promote information outreach and awareness-raising on the country's environmental problems; ix) participate in relationships with non-governmental organizations related to the environment and strengthen citizen participation mechanisms in environmental matters; x) participate in the enforcement of international treaties related to the matter and conduct the management and quest for international technical and financial cooperation, in coordination with other state agencies for implementation purposes; and xi) coordinate and promote plans and actions with inter-jurisdictional bodies of the National, Provincial and Municipal Public Administration holding jurisdiction over basin and coastal environmental sanitation and governance.

The environment authorities of the Provinces and of Buenos Aires city are the provincial authorities in charge of natural resources across their territories within the framework of provincial autonomies. They are responsible for implementing regulations on the minimum standards for environmental protection within the General Environment Law No. 25,675.

Furthermore, they promote provincial laws on the environment and issue specific resolutions in each province which supplement national resolutions. In the field of IAS, they formulate provincial monitoring and control plans for specific IAS and promote their implementation in a coordinated manner, with the participation of all affected sectors.

The National Parks Administration (APN) and provincial parks and natural resource agencies are in charge of managing national parks and the provincial parks and reserves, respectively. This would ideally include the formulation and implementation of management plans for these parks and reserves, the monitoring of biodiversity and the detection of IAS and their management and control, although these activities are not systematically implemented in all cases.

FAO, SAyDS, and SDSyA-TDF will collaborate with the implementing agencies in other programmes and projects so as to identify opportunities and facilitate mechanisms for achieving synergies with other relevant GEF-supported projects, as well as with projects supported by other donors. This collaboration will include: (i) informal communication between GEF agencies and implementing partners in other programmes and projects; (ii) exchange of information and outreach material among projects; (iii) participation in fora and coordination of inter-institutional mechanisms for having policies and action plans to promote and preserve agro-biodiversity, with representatives from national and provincial institutions, local grassroots, and civil society organizations. With a view to guaranteeing coordination and collaboration among the different initiatives, specific coordination functions were included in the field of work of the National Project Coordination Office (CNP) (see Section 4.2), the results of which must be explicitly included in the project progress reports.

Most of the internationally-funded projects, relevant to the formulation and implementation of the National IAS Strategy, are implemented under SAyDS, which simplifies interaction through very simple institutional agreements. Regardless of the formal agreements to be signed, the SAyDS Under-Secretariat for Environmental Policy and Planning (which consolidates most of the related projects) will coordinate mandatory quarterly meetings among all of the above.

Among other initiatives, the project will develop special collaboration with the following projects:

The following are the Projects that can provide specific information on the impact of IAS on different ecosystems, to be taken into account in formulating the National IAS Strategy: i) *Sustainable Management of Water Resources in the River Plate Basin with regard to the Effects of Climate Change and Variability* (Argentina, Bolivia, Brazil, Paraguay and Uruguay) (GEF ID 2095); ii) *Environmental Protection of the River Plate and its Coastline* (FREPLATA), (Argentina and Uruguay) (GEF ID 613); iii) *Environmental Protection and Sustainable Development of the Guaraní Aquifer*, (GEF ID 974); iv) *Implementation of the Strategic Action Programme for the Bermejo River Bi-National Basin* (GEF ID 176 and 886); v) *Sub-regional Action Programme for the Sustainable Development of the "Gran Chaco Americano"* (Argentina, Bolivia and Paraguay), reducing land degradation and thus the consequences of sedimentation in the upper basin (GEF ID 2505); vi) *Integrated Management and Master Plan for the Pilcomayo River*, funded by the European Union (Argentina, Bolivia and Paraguay), focusing on outlining polices for water quality along the Pilcomayo river; vii) *Strengthening of fisheries governance for protecting freshwater and wetland biodiversity in Argentina* (GEF ID 3862)*;* viii) *Rural Corridors and Biodiversity Conservation* (GEF ID

3830), the purpose of which is to provide continuity and connectivity to the country's different ecosystems, as well as greater consistency in biodiversity protection.

Other initiatives that directly include IAS management and control experiences and practices to built on are: i) *Building Partnerships to Assist Developing Countries in Reducing the Transport of Harmful Aquatic Organisms in Ballast Water* (GloBallast) (GEF ID 2261), which implemented long-term coordinated measures to minimize the adverse impact of invasive aquatic species carried in the ballast water of vessels into coastal and marine ecosystems; ii) *Sustainable Management of Arid and Semi-arid Ecosystems and Desertification Control in Patagonia* (GEF ID: 2379), which includes the impact of grass IAS on native grasslands, and explains how this invasion contributes to desertification; iii) the National Programme on Native Forests, and projects funded within the framework of the Native Forest Law, if pertinent; and iv) *"Establishment of incentives for the conservation of globally significant ecosystem services"* (GEF ID 3623), with the purpose of overcoming existing barriers in the country to implement the Payment for Environmental Services (PES) scheme, testing PES mechanisms and developing systems for their replication to ensure the protection of Argentina's ecosystems and the services they provide. Good practices for the management of alien species and for IAS control can be included in these schemes.

Furthermore, there are projects in other countries that address the same topic so it will be important to exchange experiences and lessons learnt and promote the global integration of solutions to this issue. Among them, is Mexico's GEF project (ID 4771) "*Enhancing the national capacities to manage invasive alien species (IAS) by implementing the National IAS Strategy*[75]", particularly interesting because of the country's prior activities in this field, in which it is worth mentioning the studies on "*Especies exóticas invasoras: impactos sobre las poblaciones de flora y fauna, los procesos ecológicos y la economía*" (Invasive Alien Species: impact on flora and fauna, ecological processes and the economy) [76], and those related to risk analysis of invasive alien species as part of a tri-national project including Mexico, Canada and the United States of America. The Guyra organization in Paraguay also have interesting experience on the study of IAS, setting up a database on IAS in Paraguay, and has established a South American Network on Invasive Alien Species in Forests[77].

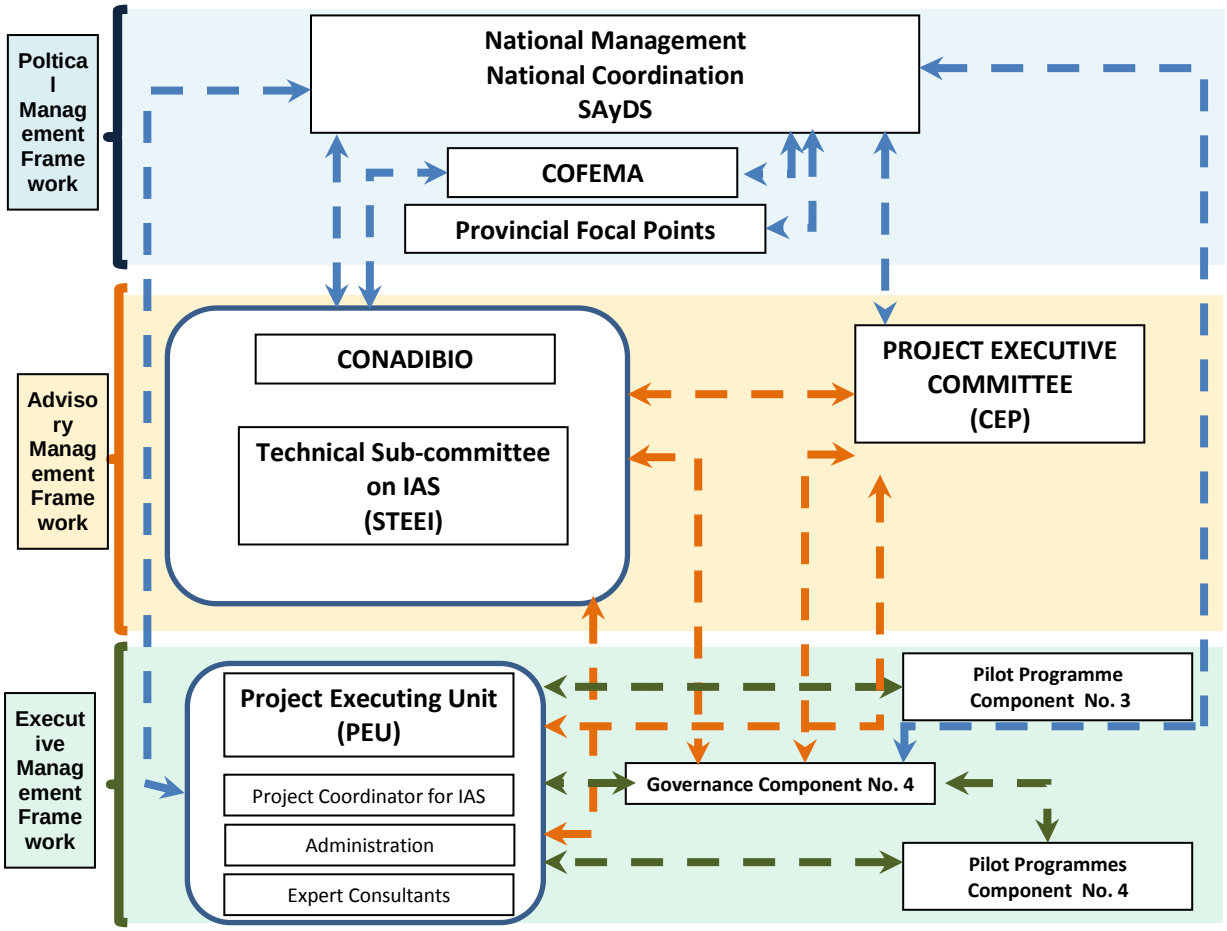
Finally, it is very important to coordinate with the project of the Chilean Ministry of the Environment /FAO/GEF (ID: 5506) *Strengthening and developing beaver (Castor Canadensis) management, prevention and control instruments for this invasive alien species in the Chilean Patagonia.* This project, just like the present project, is supported by FAO and will implement a beaver control and eradication pilot programme on the Chilean part of the TDF Island, and other Patagonia islands. EBECPA is the coordination framework between the two countries affected by the beaver IAS for their joint work in developing and implementing the bi-national objective of eradicating beavers. Both FAO/GEF-supported projects will hold bi-national workshops every six months with the purpose of coordinating Annual Operations Plans (POA) and activities, and sharing control and eradication experiences. During the last year of implementation of both projects, the two countries, with the participation of national as well as provincial/regional governments, will jointly formulate the PEBEC, moving into phase three of the bi-national process.

[75] Enhancing National Capacities to manage Invasive Alien Species (IAS) by implementing the National IAS Strategy (http://www.thegef.org/gef/project_detail?projID=4771)
[76] "*Capital Natural de México*". http://www.biodiversidad.gob.mx/pais/capitalNatMex.html
[77] http://www.guyra.org.py/EFI/

4.2 IMPLEMENTATION ARRANGEMENTS

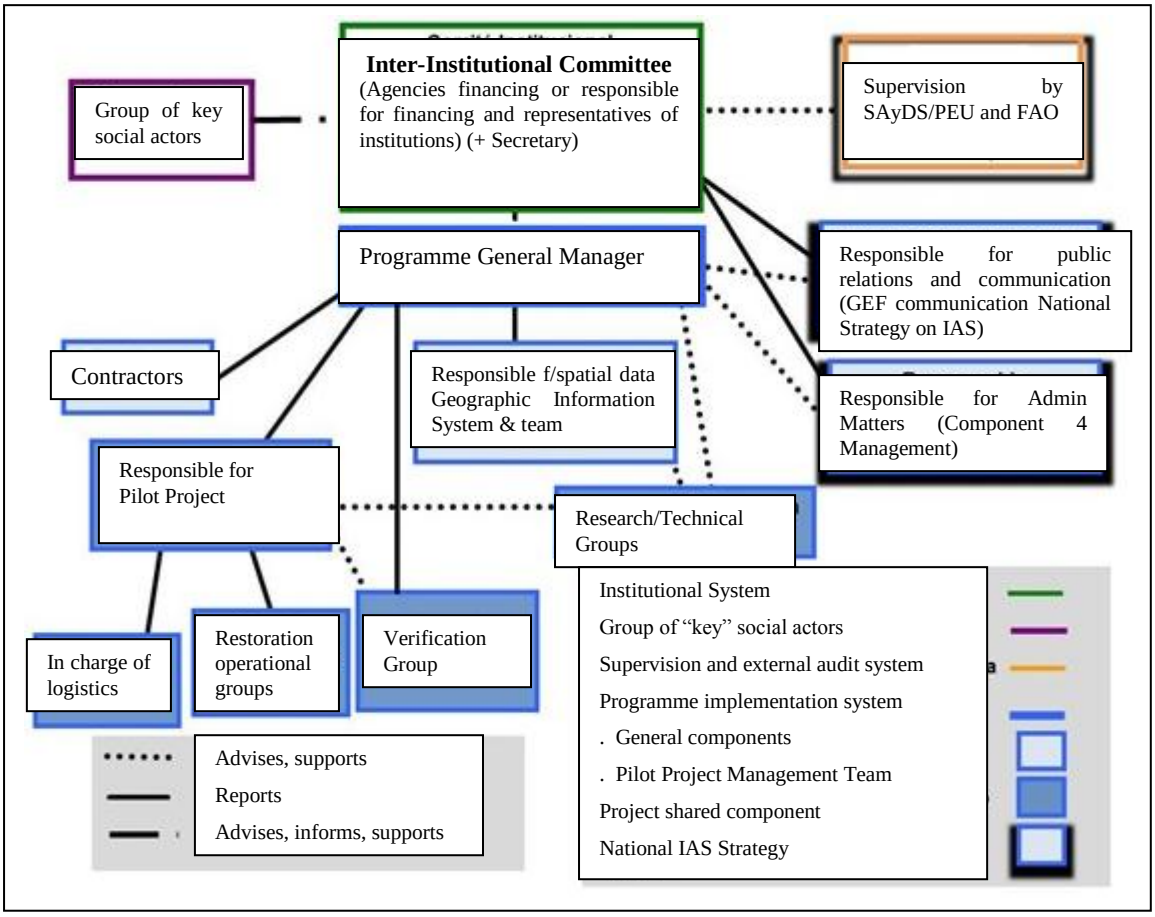
The Food and Agriculture Organization of the United Nations (FAO) will be the GEF agency responsible for supervision and provision of technical guidance during project implementation. The project's main executing partner will be the Government of the Argentine Republic, represented by SAyDS, in cooperation with the environment authorities of the Provinces and of Buenos Aires City, APN and provincial parks and natural reserve agencies. A Project Steering Committee (CEP in the Spanish acronym) (see below) will be set up to supervise and coordinate project implementation supported by a *Federal Inter-institutional Consultation Mechanism on Invasive Alien Species* institutionalized through CONADIBIO's STEEI. Pilot Programme Coordination Committees for each of the pilots under Component 3 will be used for supervising and planning activities in each pilot programme. Each Province and Buenos Aires City (CABA) will appoint a Focal Point (FP) that will support the formulation and implementation of the National IAS Strategy, and will coordinate pilot programme activities in each jurisdiction. The project will be executed through a National Project Coordination Office (CNP in its Spanish acronym) (see below.). Project management will be carried out through an institutional structure as appears in Figure 4.1.

Figure 4.1. Institutional and organizational structure for project implementation



Component 4 on the beaver control and eradication programme will be managed through an institutional structure as appears in Figure 4.2

Figure 4.2. Institutional and organizational structure for implementing Component 4.



a) Roles and responsibilities of project executing

COFEMA and CONADIBIO's STEEI are basic institutions for the project's coordination at the federal level; the former, because of its federal political representation, and the latter, because of the inter-institutional and inter-sectoral technical support its members can provide.

The **FAO Representation in Argentina**, at the request of the Argentine Government, will be in charge of the administrative and financial execution of the project (see duties and responsibilities of the GEF implementing agency below).

The **Environment and Sustainable Development Secretariat (SAyDS)** will be the national institution **responsible for project execution**, and will thus be directly responsible for: (i) the technical implementation of Project activities; (ii) the daily management of the project; (iii) monitoring of day-to-day project progress and achievement of results; and (iv) financial planning and planning of the procurement of goods, minor works and services, by FAO. SAyDS will prepare and send to the FAO Office in Argentina, Project Progress Reports (PPR) every six months, as well as a detailed Annual Work Plan and Budget (AWP/B), and all the necessary documentation for preparing the PIR (see section 4.5.3 below).

SAyDS will appoint a **National Project Director (NPD)** who will be responsible for supervising achievement of Project objectives and results, including product quality, standards and procedures established in this Project Document, and their alignment with SAyDS policies and priorities. Furthermore, he/she will facilitate coordination with other Directorates and Working Groups at SAyDS and the provincial peer agencies, and preside over the CEP as well as supervise the work of the National Project Coordinator (see below).

The **National Technical Coordination Office of the Project** (SAyDS/CTNP) will be placed within the Wild Fauna Bureau, National Directorate of Environmental Governance and Biodiversity Conservation at SAyDS. The duties of the Wild Fauna Bureau are related to: (i) Drafting national policies and programmes for the protection, conservation, recovery and sustainable use of wild fauna, establishing permanent consultation and consensus-building mechanisms with provincial governments and entities representing the sector; (ii) Developing and fostering plans, programmes and projects on the appropriate management of wild, native and alien fauna; (iii) Coordinating with the Working Group on Biodiversity Conservation - within the above National Directorate- which is in charge of implementing the National Biodiversity Strategy, and CONADIBIO. Following CEP guidelines and decisions, the main duty of SAyDS/CTNP will be to ensure project coordination and execution through rigorous and efficient implementation of AWP/Bs. SAyDS/CTNP will act as CEP Secretariat, and set up Coordination Committees for the pilot programmes. Furthermore, it will coordinate work and closely follow up on the execution of project activities, manage daily project work and requirements, coordinate project interventions with other ongoing activities, and ensure a high level of collaboration among participating institutions and organizations at all levels (national, provincial and local), follow up on project progress and ensure timely delivery of inputs and outputs. Under FAO standards and procedures in accordance with this project document and the AWP/B, SAyDS/CTNP will plan procurement and contracting processes and select providers of small goods, and hiring of services, request FAO to process contracts and carry out procurement and payments. SAyDS will supervise and evaluate consulting services and their outputs (which will be the basis for payments). It will organize workshops and annual meetings for monitoring project progress and prepare AWP/Bs to be submitted to FAO and CEP for their approval. It will also be responsible for implementing the project's monitoring and evaluation plan, managing the monitoring system and the project's communication programme, preparing PPRs, and facilitate access to all needed information for the PIRs and the mid-term and final evaluations. It will submit PPRs and AWP/Bs to FAO and the CEP together with financial statement of expenditure reports (the latter prepared by FAO).

SAyDS/CTNP will have the following part time staff funded through co-financing: (i) The National Project Director will be the official who is in charge of the Under-secretariat for Environmental Policy and Planning; (ii) The National Director of Environmental Governance and Biodiversity Conservation will support the national coordination of the project; (iii) technical and administrative personnel from the Wild Fauna Directorate (one Director, four technicians and two administrative staff) will support the PEU; (iv) The "Working Group on Biodiversity Conservation", through the head of the area, and four technicians responsible for coordinating the necessary actions to formulate and execute the National Strategy on Biological Diversity, and conduct CONADIBIO and its STEEI; and (v) technicians from the Working Group on Aquatic Resources, the Working Group on Protected Areas, the Climate Change Directorate, and the MERCOSUR Sub-working Group No. 6 on Environmental matters under SAyDS

Furthermore, SAyDS/CTNP will be reinforced by the following full-time staff paid with GEF Funds (see Terms of Reference in Annex 6): a National Project Coordinator (see below); an IAS expert; a Communications expert; and a Project assistant. Additionally, each pilot programme will have a part-time coordinator.

The **National Project Coordinator (CNP)** will be responsible for the day-to-day management and technical supervision of the project which includes the following: prepare AWP/Bs and assign tasks to SAyDS/CTNP staff; draft the Terms of Reference and technical requirements for consulting services as well as technical specifications for procurement of material and equipment; provide advice and technically supervise SAyDS/CTNP staff, as well as the institutions and organizations executing project activities; carry out field supervision visits and provide on-site advice to technical staff of provincial institutions and other organizations involved in the project; coordinate and maintain daily contacts with all experts/consultants working for the project; and prepare PPRs and provide inputs for PIRs. Furthermore, he/she shall ensure a close relationship of project activities with the strategies of CONADIBIO, COFEMA, and SAyDS Programmes and Projects, contributing to the effective dissemination of lessons learnt at the national and international levels.

A **Project Steering Committee (CEP)** will be set up as a political-technical structure for planning and consensus-building in support of project execution and coordination. The CEP will be headed by the NPD, a high-level representative of SAyDS. The remaining committee members will be the following: CNP, the focal point of each of the Provinces in which the pilot programmes under components 3 and 4 are implemented (see below); an APN representative; an I3N Argentina representative, and representative from the FAO Office in Argentina. The PSC will take decisions on the overall management of the project and will be responsible for maintaining the strategic approach of the project's specific operational tasks. Its functions include the following: (i) general supervision of the progress of the project and the achievement of expected results through the semiannual PPR; (ii) make decisions with regard to the organization, coordination and execution of the project; (iii) facilitate cooperation among SAyDS, GoPs, FAO and other institutions and organizations participating in the project; (iv) bring to the attention of SAyDS/CTNP other activities underway or planned to facilitate the collaboration between the project and other programs, projects and initiatives related to IAS management, particularly in the pilot intervention areas under components 3 and 4; (v) ensure co-financing is provided in a timely and efficient manner; and (vi) review semi-annual PPRs and financial reports and approve AWP/Bs. It will meet for the first time before the Inception Workshop to adopt a AWP/B and establish an activity schedule and meetings that will take place at least once a year.

A **Federal and Inter-Institutional Consultation Mechanism on IAS** will be established and institutionalized through CONADIBIO's STEEI, which provide for sustainability of the inter-institutional framework during and after project implementation. The objective of the mechanism is to generate a coordinated vision in the process of preparing and implementing the National IAS Strategy and its components, aimed at optimizing processes, building on existing capacities, and facilitating the construction of new notions based on prior inter-institutional consensus. Federal political participation is will be guaranteed through the annual presentation of the summarized AWP/B and PPRs to COFEMA. STEEI is made up of members of the scientific and technical sectors, government agencies from the sectors of production (agriculture, livestock, fisheries, forestry), education and the environment, plant and animal health (SENASA), security forces (particularly those related to border safety and security). It currently comprises SAyDS, SENASA, the National Seed Institute (INASE), INTA, the National Ministry of Agriculture, Livestock and Fisheries (MAGyP), National

Parks Administration (APN), General Environment Directorate – Ministry of Foreign Affairs-(DIGMA), and the NGOs *Aves Argentinas* and the Argentine Association of Landscape Ecology (ASADEP). Anyhow, other key stakeholders identified during the formulation stage can also be convened as from project start-up, particularly the National Inter-University Council (CIN); the Council of Presidents of Private Universities (CRUP); and CONICET. Moreover, the idea is to call upon Business Chambers and professional organizations in the field of work of the project, as well as representatives from indigenous peoples to participate.

The Provinces and CABA will appoint a **Provincial Focal Point (PFP)** and a **Focal Point (FP)**, respectively. They will act as a link with their respective jurisdictions, in the formulation and implementation of the National IAS Strategy. They will act as a liaison responsible for coordinating activities in their jurisdiction. Furthermore, they will be in charge of supervising component 3 and 4 validation Pilot Programme activities in the jurisdiction they represent.

For each pilot under Component 3, a **Pilot Coordination Committee (PCC)** will be set up and include, according to each case (please see section 2.4): the relevant PFP/FP; representatives from other provincial government institutions; the coordinator of the pilot financed by the project; research institutions; municipal governments; civil society organizations; PNA (Coast Guard); provincial parks and reserves; SAyDS; SENASA; and other government institutions. PCCs will provide guidelines to the pilot activities and plan and coordinate activities always seeking synergy with other relevant initiatives. They will supervise progress in achieving pilot programme objectives and will contribute to the learning and validation process, and feedback into the National IAS Strategy based on experiences and lessons learnt from the pilot.

Pilot programme on beaver control and erradications, Component 4 (for further details, see Annex 7.b).

The territories involved and the implications of the subsequent integration of activities with the Republic of Chile (Region XII) will call for a special governance structure for this pilot programme.

An **Inter-Institutional Committee** will be established to plan and coordinate the Beaver Pilot Programme, and to ensure synergies with other relevant initiatives in TDF. The Committee will be set up within the framework of the *Focal Point's Advisory Committee within the Bi-national Agreement*, revitalized by the simultaneous implementation of projects in Argentina and Chile. Members of the Inter-Institutional Committee will represent the interests of institutions/agencies in charge of managing natural resources and of co-financers of the Beaver Pilot Programme, among others, SAyDS, SDSyA/TDF, and APN. It will be headed by a representative of TDF province and must remain in place after project completion so as to ensure bio-security in the areas from which beavers have been eradicated, and support the following phase of PEBEC implementation. Its specific functions will be the following: i) Provide a political-strategic guide for the Programme and support the Programme's General Manager (see below) in achieving the proposed objectives and goals, within the established terms; ii) Approve AWP/Bs and provide its no-objection to the semi-annual progress reports on the implementation of Component 4; iii) Monitor the Programme's development and the fulfillment of its goals, objectives and procedures, and make political-strategic decisions, if necessary, in agreement with the Bi-national Strategic Plan, with the National IAS Strategy, and considering potential expert recommendations and/or of the Group of "key" actors (see below); iv) Keep the different government agencies informed, as well as the Programme's

financing agencies and the group of "key" social actors, and facilitate communication with partners and with the community; v) With the participation of FAO, select the Programme's General Manager and participate in the selection of those responsible for the different components of the governance and management structure; vi) Review and approve the different protocols to be used within the Programme and convene outsiders should technical advice or collaboration be required; vii) Inform leaders of the parallel Project in Chile and coordinate actions; and viii) Guarantee the bio-security of the pilot areas beyond the duration of the GEF/National IAS Strategy Pilot Programme. The Committee should meet periodically and have a formal procedure for its operations. With the purpose of reinforcing the province's environmental institutions, providing sustainability and granting a greater horizon to the PEBEC governance and management system, all efforts will be made for this "inter-institutional committee" to become a part of the Provincial Council on the Environment[78], Provincial Law No. 55/92, under the format of a commission.

An **Advisory Group of "Key" Social Actors** will be set up, including representatives of farm owners, the forestry sector, sports fishing, tourism sector, environmental NGOs. The purpose of this committee is to ensure these actors partake in the pilot programme's implementation and inform the Inter-Institutional Committee on topics of interest. The Group's composition may change and become enriched as the programme develops and once the GEF project has ended, when a Bio-Security Plan will be kept in place and the PEBEC will be implemented.

GEF resources will be used to hire a **Programme General Manager** to coordinate the different Pilot Programmes, and to ensure that the main specialists supporting programme implementation (person responsible for PR and Communications, person responsible for spatial data/GIS, Head of Administration, person responsible for Pilot Project, person in charge of Logistics, Research Group, Operational Groups, etc.) work effectively and in a coordinated fashion throughout the Programme (see organization chart Figure 4.2). The Manager's specific duties will be the following: i) Oversee compliance with the Plans of Action of each Pilot Demonstration Unit with a view to achieve planned outcomes in due time and within the foreseen operational and budgetary parameters, promoting corrective actions vis-à-vis any deviation from the planned activities, particularly with regard to critical aspects for the Programme as a whole; ii) Formulate, negotiate the approval and monitor the implementation of the AWP/B for the component 4 and draft progress reports every six months on the implementation, and obtain the no-objection of the Inter-Institutional Committee; iii) Inform the Inter-Institutional Committee about any "key needs", the programme's progress, potential modifications to the original Plans, and be accountable to this Committee; iv) Coordinate the activities of the Programme's overall Components and of the Management Team, with the different operational units of the pilot demonstration units, sticking to a joint vision; v) Supervise all Programme activities, including the interaction with key actors, selection for hiring operational staff, logistics, field operations, drafting of reports by the Management Team, budget delivery (together with the Administration), etc; vi) Define, coordinate and guarantee that the Programme's overall operational matters (helicopter movements, availability and maintenance of material, equipment and resources shared among the different Pilot Projects, fuel) are available and can be delivered as planned. vii) Outline detailed Plans of Action, together with the Heads of Operations of each Pilot Demonstration

[78] It is the body for coordinating actions of the different government agencies with jurisdiction over environment preservation, conservation, defense and improvement, and includes representatives of the provincial legislative branch, of each of the Province's municipalities, universities, research and development centres, non-governmental organizations working on the environment, and is consulted by the Provincial Executive Branch.

Unit; viii) Prepare, together with the Management Team and those responsible for training, as well as with the members of the communication component, protocols and operational handbooks for the programme, and communication and interpretation material, with external advice and/or collaboration, if necessary, and in contact with the Inter-Institutional Committee; ix) Hold monitoring and coordination meetings/workshops with the different Heads of Operations in the different Pilot Projects; x) Participate in Inter-Institutional Committee meetings; xi) Coordinate actions with the project in parallel in Chile, together with the Inter-Institutional Committee.

b) Roles and responsibilities of FAO as the GEF agency

The Food and Agriculture Organization of the United Nations (FAO) will be the GEF agency for this project. FAO will provide overall supervision and technical guidance services during project implementation. The administration of the GEF resources will be carried out in accordance with rules and procedures of FAO, and in accordance with the agreement between FAO and the GEF Trustee.

As a GEF agency for this project, FAO will:

- Manage and disburse funds from GEF in accordance with the rules and procedures of the FAO;
- Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers and the rules and procedures of FAO;
- Provide technical guidance to ensure that appropriate technical quality is applied to all activities of the project;
- Carry out at least one supervision mission per year; and
- Report to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review on project progress and provide financial reports to the GEF Trustee.

Roles and responsibilities of FAO as the GEF fund administrator

At the request of the Government of Argentina, in addition to being the GEF implementing agency, FAO will be the administrator of the GEF resources and will be in charge of the financial execution, procurement and contracting of goods and services following rules and procedures stipulated in the FAO manual (mainly in the sections No. 502 and 507). SAyDS/CTNP, in line with CEP guidelines, will request FAO to execute payments for the implementation of products and services delivered by consultants and contract holders.

As administrator of the GEF resources, FAO will submit semi-annual financial statements of expenditures to SAyDS/CTNP, CEP and the Component 4 Inter-Institutional Committee, PSC in accordance with the project document, progress in financial delivery, the AWP/B and the Procurement and Travel Plan. FAO will perform budget revisions to keep the budget current in the financial system of FAO (FPMIS) and will communicate revised budgets to SAyDS/CTNP, CEP and the Component 4 Inter-Institutional Committee so as to facilitate Project planning and execution. In collaboration with SAyDS/CTNP, CEP and the Component 4 Inter-Institutional Committee, FAO will participate in the planning and realization of contracting and procurement processes including selection of providers and consultants and issuing of contracts. FAO will also pay for products and services delivered after approval by SAyDS/CTNP and the General Manager of the Beaver Pilot Programme.

Roles and responsibilities of FAO as a GEF agency and administrator of the GEF resources, including FAO internal arrangements.

The FAO Representative in Argentina, assisted by the Programme Officer and the FAO-GEF Project Task manager (PTM) (see below) will be the Budget Holder (BH) and responsible for the management of GEF resources. In coordination with the FAO Lead Technical Officer (LTO) and Lead Technical Unit (LTU) (see below), the BH will be responsible for the operational, administrative and financial management of the project. As a first step in project start-up, the FAO Representation in Ecuador will establish an interdisciplinary Project Task Force within FAO to guide the implementation of the Project. The BH will in particular be responsible for: (i) submitting semi-annual financial statements of expenditures of the project to SAyDS/CTNP, CEP and the Component 4 Inter-Institutional Committee; (ii) procurement of goods and contracting of services for project activities, in accordance with FAO rules and procedures, at the request of SAyDS/CTNP and of the General Manager of the Beaver Control Programme, and in accordance with the approved AWP/B; (iii) payments for goods and services delivered after approval by SAyDS/CTNP and the General Manager of the Beaver Pilot Programme; and (iv) preparing budget revisions for their approval by the FAO-GEF Coordinating Unit at least once a year or when necessary, ensuring that the FAO budget in the system is up to date.

The FAO Representative in Argentina will, in consultation with the FAO LTO and LTU and the FAO-GEF Coordination Unit, give no-objection to the AWP/Bs, submitted by SAyDS/CTNP, as well as PPRs, which must be approved by the LTO of the project. The FAO Representative, as BH, will submit PPR to the FAO-GEF Coordination Unit for their final clearance and integration into the FPMIS.

The FAO-GEF Project Task Manager (PTM) will work under the direct supervision of the FAO Representative in Argentina and will support the FAO Representative in the supervision of the management and progress of the project as well as in FAO participation in procurement and contracting processes. The PTM will also ensure the provision of technical guidance to the project, in close consultation with the LTO, and the Project Task Force. The PTM will be paid from GEF fee resources and will have the following main tasks:

- Review and provide comments on PPRs from SAyDS/CTNP and submit them to the LTO for approval and subsequently to the FAO GEF Coordination Unit for final clearance and uploading on the FPMIS;
- Participate in annual project progress review and planning workshops, and review, provide comments, and advise the FAO Representative on giving no-objection to AWP/B in consultation with the LTO, LTU and the FAO- GEF Coordination Unit;
- Review procurement and contract documentation of contracts and acquisitions to be financed by GEF resources and advise the FAO Representative on giving no-objection for issuing contract, in close consultation with the LTO and the FAO GEF Coordination Unit;
- Review reports on executed co-financing to be submitted every year (June);
- Review the six-monthly financial statement of expenditure, prepared by the FAO finance officer, before submitting it to the SAyDS/CTNP, CEP and Component 4 Inter-institutional Committee
- Conduct periodic supervision missions and support the provision of FAO technical and results-based management input to the project;
- Support the LTO in preparation of the annual Project Implementation Review (PIR) report;

- Represent FAO, if required by FAO Representative, in the Project Steering Committee and interview and selection panels for key project positions to be financed by GEF resources; and
- Prepare draft TOR for mid-term and final evaluations, in consultation with the FAO Evaluation Office, the LTO, the LTU and the FAO-GEF Coordination Unit, SAyDS/CTNP, and General Manager of the Beaver Pilot Programme, support the organization of the mid-term and final evaluations, contribute to the development of an eventual agreed adjustment plan in project execution approach and supervise its implementation.

The FAO Lead Technical Unit (LTU) will be the Forest Assessment, Management and Conservation Division (FOM) of the Forestry Department (FO). The Regional Office for Latin America and the Caribbean (RLC) will appoint a project Lead Technical Officer (LTO), with experience in IAS management, who will provide guidance and technical support to the project and to the PTM responding to requests from SAyDS/CTNP, and the General Manager of the Beaver Pilot Programme, on specific technical issues during project implementation. Specifically, the LTO, supported by the LTU when so required, will be responsible for:

- review and ensure clearance by the relevant FAO technical officers of all the technical Terms of Reference (TOR), LOAs, and contracts to be performed under the project and to CVs and technical proposals short-listed by the SAyDS/CTNP, and the General Manager of the Beaver Pilot Programme for key project positions, goods, minor works, and services to be financed by GEF resources;
- supported by the PTM, review and insure clearance by the relevant FAO technical officers of final technical products delivered by consultants and contract holders financed by GEF resources before the final payment can be processed;
- assist with review and provision of technical comments to draft technical products/reports on request from the SAyDS/CTNP, and the General Manager of the Beaver Pilot Programme during project execution;
- review and approve PPRs submitted by SAyDS/CTNP to the FAO Representation in Argentina in coordination with the PTM and the FAO-GEF Coordination Unit;
- support the FAO Representative in reviewing, revising and giving no-objection to AWP/B submitted by SAyDS/CTNP and to be approved by the CEP;
- prepare the annual Project Implementation Review report, supported by the PTM and inputs from SAyDS/CTNP, and the General Manager of the Beaver Pilot Programme, to be submitted for clearance and completion by the FAO-GEF Coordination Unit which will subsequently submit the PIR to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The LTO must ensure that SAyDS/CTNP, and the General Manager of the Beaver Pilot Programme have provided information on co-financing invested during the course of the year for inclusion in the PIR;
- field annual (or as needed) project supervision missions;
- review and revise TORs for the mid-term evaluation, participate in the mid-term evaluation workshop with all key project stakeholders, development of an eventual agreed adjustment plan in project execution approach, and supervise its implementation supported by the PTM.
- review and revise TORs for the final evaluation, participate in the final project closure workshop with all key project stakeholders and the development of and follow up on recommendations on how to insure sustainability of project outputs and results after the end of the project.

The FAO-GEF Coordination Unit will review and approve project progress reports, project reviews, and financial reports and budget revisions. The coordination unit will review and clear the annual PIR and undertake supervision missions if considered necessary. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the GEF Coordination Unit. The GEF Coordination Unit will also participate in the mid-term and final evaluations and the development of corrective actions in the project implementation strategy in the case needed to mitigate eventual risks affecting the timely and effective implementation of the project. The GEF Coordination Unit will in collaboration with the FAO Finance Division request transfer of project funds from the GEF Trustee based on six-monthly projections of funds needed.

The FAO Finance Division will provide annual Financial Reports to the GEF Trustee and, in collaboration with the GEF Coordination Unit, call for project funds from the GEF Trustee on a six-monthly basis.

4.3 FINANCIAL MANAGEMENT AND PLANNING

4.3.1 Financing Plan (by component, output and co-financer)

Total project costs will amount to USD 22 117 901, out of which USD 3 870 000 will funded by a GEF Grant and USD 18 247 901 from counterpart contributions committed during the project's design phase. Table 4.1 shows costs by component, output and funding source and Table 4.2 shows sources and type of confirmed co-funding. FAO, as GEF agency, shall solely be accountable for the implementation of the GEF resource and FAO co-financing.

Table 4.1. Project Costs by component, output and funding source.

Component/output	SAyDS	CONICET	INTA	SENASA	CUDAP	APN	PNA	PROVINCIAS	FAO	Total Co-financing	% Co-financing	GEF	% GEF	Total
Component. 1: Strengthening institutional capacities at the national and provincial levels for managing IAS	**549,950**	**135,282**	**23,000**	**51,200**	**2,000,000**	**37,000**	**39,530**	**240,000**	**-**	**3,075,962**	**75%**	**1,012,520**	**25%**	**4,088,482**
Output 1.1.1 National information system on IAS	5,543	116,082	7,000	5,000	-	3,000	5,000	20,000		221,625	67%	109,308	33%	**330,933**
Output 1.1.2 Oficial IAS list	95,010	9,600	-	5,200	-	2,000	2,530	15,000		129,340	73%	46,809	27%	**176,149**
Output 1.1.3 National IAS strategy	86,676	9,600	10,000	20,000	-	2,000	-	40,000		168,276	78%	46,144	22%	**214,420**
Output 1.1.3.a: Prevention of the introduction of IAS	63,343	-	3,000	7,000	-	10,000	20,000	35,000		138,343	81%	32,004	19%	**170,347**
Output 1.1.3.b: Early detection and rapid response systems and protocols	63,343	-	3,000	4,000	-	10,000	10,000	30,000		120,343	72%	45,861	28%	**166,204**
Output 1.1.3.c: Prioritization, control and eradication systems for national and provincial protected areas	77,692	-	-	5,000	-	10,000	-	20,000		112,692	94%	7,000	6%	**119,692**
Output 1.1.4: Communication strategy of National IAS Strategy	98,343	-	-	5,000	2,000,000	-	2,000	80,000		2,185,343	75%	725,394	25%	**2,910,737**
Component 2: Strengthening regulatory frameworks and financing mechanisms in support of the implementation of the National IAS Strategy.	**316,428**	**-**	**-**	**50,000**	**-**	**-**	**3,000**	**16,639**	**-**	**386,067**	**70%**	**163,013**	**30%**	**549,080**
Output 2.1.1: Harmonized regulatory frameworks for IAS	206,428	-	-	50,000	-	-	3,000	16,639		276,067	77%	81,813	23%	**357,880**
Output 2.1.2: Financing mechanisms for the National IAS Strategy	60,000	-	-	-	-	-	-	-		60,000	74%	21,400	26%	**81,400**
Output 2.1.3: Law on minimum IAS standards and budget	30,000	-	-	-	-	-	-	-		30,000	38%	49,700	62%	**79,700**
Output 2.1.4: IAS on the MERCOSUR agenda	20,000	-	-	-	-	-	-	-		20,000	66%	10,100	34%	**30,100**
Component 3: Validation and implementation of protocols for controlling IAS, prioritized by taxonomic categories and ecosystems, included in the National IAS Strategy	**616,744**	**84,484**	**40,000**	**75,700**	**5,000,774**	**41,824**	**251,588**	**3,329,430**	**-**	**9,440,544**	**91%**	**960,121**	**9%**	**10,400,665**
Output 3.1.1 System for IAS early detection, dispersal prevention and rapid response at ports and surrounding areas	81,000	-	-	-	1,528,000	-	-	78,400		1,687,400	94%	112,086	6%	**1,799,486**
Output 3.2.1 Pilot on Red-Bellied Tree Squirrel and other potential IAS pets	82,000	64,484	-	-	528,000	-	201,588	-		876,072	88%	120,025	12%	**996,097**
Output 3.2.2 Pilot on Didymo Algae in Rio Negro, Neuquén and Chubut provinces	85,000	-	-	-	528,500	41,824	50,000	1,994,666		2,699,990	93%	187,946	7%	**2,887,936**
Output 3.2.3. Pilot on Tamarisks (salt cedar) in the Cuyo region	103,000	5,000	10,000	-	629,548	-	-	901,961		1,649,509	90%	189,211	10%	**1,838,720**
Output 3.2.4. Pilot on Bullfrog at the national level	80,000	15,000	10,000	17,465	430,726	-	-	-		553,191	82%	122,143	18%	**675,334**
Output 3.2.5. Pilot on Giant African Snail in Parana jungle	85,000	-	10,000	58,235	928,000	-	-	184,686		1,265,921	93%	99,796	7%	**1,365,717**

Output 3.2.6. Pilot on Glossy Privets in Northern Argentina with the Ocloya indigenous community	100,744	-	10,000	-	428,000	-	-	169,717		708,461	85%	128,912	15%	**837,373**
Component 4: : Development of the pilot programme for eradication of the American Beaver in Tierra del Fuego province, based on the IAS governance	**233,296**	**583,916**	**20,000**	**-**	**1,417,000**	**256,764**	**-**	**1,925,770**	**-**	**4,436,746**	**76%**	**1,371,774**	**24%**	**5,808,520**
Output 4.1.1 Governance and management structure for the Beaver control and eradication programme	**58,074**	**225,588**	**10,000**	**-**	**-**	**133,652**	**-**	**1,050,061**		1,477,375	99%	**14,443**	1%	**1,491,818**
Output 4.1.2 Operational plans and eradication protocols for demonstration units	**56,074**	**24,897**	**-**	**-**	**-**	**54,314**	**-**	**408,453**		543,738	92%	**46,638**	8%	**590,376**
Output 4.1.3 Capacity building for managing and eradicating beavers	**58,074**	**295,000**	**10,000**	**-**	**-**	**43,700**	**-**	**380,981**		787,755	88%	**111,123**	12%	**898,878**
Output 4.1.4 Capacity building for managing and eradicating beaver	**61,074**	**38,431**	**-**	**-**	**,417,000**	**25,098**	**-**	**86,275**		1,627,878	94%	**104,331**	6%	**1,732,209**
Output 4.1.5 Implementation of operational plans for the eradication in demonstration units	**233,296**	**583,916**	**20,000**	**-**	**1,417,000**	**256,764**	**-**	**1,925,770**		4,436,746	92%	**393,351**	8%	**4,830,097**
Output 4.1.6 Biosecurity systems (control, monitoring and prevention of reinvasion)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		-	0%	**559,066**	100%	**559,066**
Output 4.1.7 Communication strategy on beavers as IAS	**37,876**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		37,876	27%	**104,677**	73%	**142,553**
Output 4.2.1 Exchange of experiences and coordination of the learning process between Chile and Argentina	**10,706**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		10,706	37%	**17,853**	63%	**28,559**
Output 4.2.2 Governance framework and bi-national programme on beaver eradication	**10,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		10,000	33%	**20,293**	67%	**30,293**
Component 5: Project monitoring, evaluation and disemination of information	**58,582**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**100,000**	**158,582**	**54%**	**134,266**	**46%**	**292,848**
Output 5.1.1 Project monitoring system	**37,876**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	100,000	37,876	31%	**83,040**	69%	**120,916**
Output 5.1.2 Mid-Term and Final Evaluations	**10,706**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		10,706	45%	**13,200**	55%	**23,906**
Output 5.1.3 Dissemination of project's good practices and lessons learnt	**10,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		10,000	21%	**38,026**	79%	**48,026**
Project Management	**600,000**	**-**	**-**	**-**					**150,000**	**750,000**	**77%**	**228,307**	**23%**	**978,307**
Total Project	**2,375,000**	**803,682**	**83,000**	**176,900**	**8,417,774**	**335,588**	**294,118**	**5,511,839**	**250,000**	**18,247,901**	**83%**	**3,870,000**	**17%**	**22,117,901**

Table 4.2 Source and type of confirmed co-financing

Co-financing Sources	Name of co-financer	Type of Co-financing	Amount ($)
National Government	SAyDS	Grant	1,800,000
National Government	SAyDS	In kind	575,000
National Government	CONICET	Grant	196,082
National Government	CONICET	In kind	607,600
National Government	INTA	In kind	83,000
National Government	SENASA	In kind	176,900
National Government	CUDAP	Grant	8,417,774
National Government	APN	Grant	335,588
National Government	PNA	In kind	294,118
Provincial Government	Mendoza	In kind	901,961
Provincial Government	Buenos Aires	Grant	4,282
Provincial Government	Buenos Aires	In kind	74,118
Provincial Government	Chubut	Grant	1,948,490
Provincial Government	Chubut	In kind	20,588
Provincial Government	Jujuy	Grant	13,835
Provincial Government	Jujuy	In kind	155,882
Provincial Government	Misiones	Grant	12,098
Provincial Government	Misiones	In kind	172,588
Provincial Government	Río Negro	Grant	5,588
Provincial Government	Río Negro	In kind	20,000
Provincial Government	Tierra del Fuego	Grant	928,318
Provincial Government	Tierra del Fuego	In kind	1,254,091
Implementing Agency	FAO	Grant	50,000
Implementing Agency	FAO	In kind	200,000
Total Co-financing			**18,247,901**

4.3.2 GEF Inputs

GEF's contribution to the project will be used to support the activities generating global environmental benefits that at present cannot be adequately funded by local actors. GEF resources will be allocated to financing technical assistance, training and activities related to promotion, validation of pilot programmes, outreach, adjustment of regulations and regional collaboration and coordination activities which could not be carried out without this financial contribution. For further details see Section 1.1.1.b, incremental reasoning for GEF resources, and section 2.4 Component Description. **GEF resources will not be used for activities related to the sacrificing of beavers (within the eradication actions)**.

4.3.3 Government Inputs

GoA and Provincial Governments (GoPs) have confirmed the co-financing of USD 17.9 million (out of which USD 13.6 million are in cash), accounting for 75 % of the project's total co-financing. Co-financing contributions come mainly from the central authorities working on biodiversity and productive activities related to the presence and impact of IAS.

An important part of the cash contribution comes from CUDAPE (Public Communication Secretariat of the Federal Government). **C**UDAP has allocated 42.931 million Argentine Pesos (converted into USD 8.4 million using the exchange rate at the time of signature of the co-financing letter) 'fresh money' in its budget for a national public information and awareness raising campaign to accompany the formulation and implementation of the national IAS strategy the next 4-5 years. This will include public communication targeting the entire country on the objectives, content and implementation of the National IAS Strategy including IAS risks, and prevention, early detection, reporting and action measures. The campaign will also have subcomponents to support each of the control and/or eradication pilots supported by the project components 3 and 4, to make sure the pilots gain the desired public awareness and participation in prevention control and eradication actions as appropriate. The fresh budget contribution from CUDAPE is therefore a very important co-financing for the GEF-project. In concrete this grant will finance consultancy services, TV and radio spots running over longer periods, small documentaries, and campaign material and its distribution.

The government co-financing ~~y~~ also include inputs from national and provincial agencies, public universities and research institutes. Furthermore, security forces provide help as regards control mechanisms, particularly along the borders (PNA, Border Patrol and PSA). A significant part of the governments' contributions consist of staff time at the central, provincial and local levels. Other items include Project management costs, certain material and equipment for field testing, dissemination in the mass media, relations with the community, meetings and surveys. For further details see Section 1.1.1.a Baseline initiatives, programmes/projects and investments, and Tables 4.1 and 4.2.

4.3.4 FAO Inputs

FAO will contribute with USD 250 000, broken down as follows: USD 50 000 as a Grant, from the Technical Cooperation Fund, and USD 200 000 in kind, by providing staff time, and travel, in addition to what is covered by GEF agency fees, for project technical assistance, particularly with regard to IAS pests for the agriculture and forestry sectors, risks and good practices for managing alien species in aquaculture and fisheries, and recovery of forest and agro-ecological ecosystems.

4.3.5 Other co-financers Inputs

Huge efforts will be made to bring the tourism-related sectors (particularly at the provincial level) into the project's full implementation, as well as energy sectors and agencies responsible for irrigation and capturing of water for human consumption.

4.3.6 Financial management of and reporting on GEF resources

Financial management and reporting in relation to the GEF resources will be carried out in accordance with FAO's rules and procedures and the Financial Procedures Agreement between FAO and the GEF Trustee. In accordance with the project budget FAO will carry out the operations for disbursement, procurement and contracting for a total of 3 870 000 USD of GEF resources. FAO will maintain a separate account in US dollars for the GEF resources of the project showing all income and expenditure.

Financial statements and reports

All the financial reports shall be in US dollars and shall be prepared by FAO with inputs from Heifer. Within 10 working days from the end of each semester, i.e. before the July 15 and January 15, the FAO Representation shall deliver six-monthly financial statement of expenditures of the GEF resources to the SAyDS/CTNP and the General Manager of the Beaver Programme.[79] The financial report shall be issued on the basis of FAO regulations.

FAO shall prepare the following financial reports on the use of GEF resources, utilizing the annual results-oriented budget modality in FAO/FPMIS:

1. details of project expenditures on an output-by-output basis, reported in line with project budget lines as set out in the project budget included in this Project Document appendix 3, as at 31 December each year;
2. an annual budget revision in accordance with the expenses incurred and the AWP/B approved by the PSC. The revision shall be prepared in accordance with FAO guides, standards and procedures and shall be approved by the BH (FAO Representative in Argentina), the LTO, and FAO-GEF Coordination Unit; and
3. a final statement of account in line with the project budget included in this Project Document appendix 3, reflecting actual final expenditures under the project, when all obligations have been liquidated;

Financial reports for submission to the donor (GEF) will be prepare in accordance with the provisions of the Financial Procedures Agreement with the GEF Trustee and submitted by FAO Finance Division (CSFE).

Responsibility for any cost overruns

The BH will be responsible for the use of the funds of the GEF in strict compliance with this Project Document. FAO will be authorized to make variations not exceeding 20 per cent on any total output budget line or any cost category line of the project budget provided that the total allocated for the specific budgeted project component is not exceeded and the reallocation of funds does not impact the achievement of any project outputs. Any variations exceeding 20 per cent on any total output budget line or any cost category line, that may be necessary for the proper and successful implementation of the project, shall be subject to prior consultations with and approval by the FAO-GEF coordination Unit to confirm the budget revision will not impact the overall design and scope of the project including impacting the achievement of project outputs and outcomes. If this cannot be confirmed the FAO-GEF coordination Unit shall consult with the GEF Secretariat prior to the eventual adoption of the budget revision. Under no circumstances higher spending than approved by the GEF can take place. Cost overruns will be the sole responsibility of the BH.

Audit

The project shall be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.

[79] The purpose of the financial statement is to list the expenditures incurred on the project on a six monthly basis so as to monitor project progress and to reconcile products achieved with expenditures incurred during the six months period.

The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the Governing Bodies of the Organization and reporting directly to them, and an internal audit function headed by the FAO Inspector-General who reports directly to the Director-General. This function operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO which establish a framework for the terms of reference of each. Internal audits of impress accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

4.4 PROCUREMENT

At the request of SAyDS/CTNP, FAO will acquire the equipment and services referred to in the budget (Annex 3 of this Project Document) and in the AWP/B, in accordance with the rules and regulations of FAO.

Careful procurement planning is needed to ensure that the goods, services and personnel are timely hired and under the principle of “best value for money”. It requires an analysis of the needs and limitations, including a reasonable projection of the time required to perform a procurement process. The procurement and contracting will follow FAO rules and procedures for the acquisition of materials, equipment and services (for example, sections 502 and 507 of the Manual) for technical cooperation projects. Section 502: "acquisition of goods, works and services", sets out the principles and procedures that apply in the acquisition of all goods, works and services, on the part of the Organization, in all its offices and in all locations, with the exception of the actions of acquisition, which is described in Appendix A - procurement that is not governed by section 502 of the Manual. In addition, section 507 of the Manual sets out the principles and regulations that govern the use of Agreement by FAO, for a proper acquisition of services by eligible entities in a transparent and impartial manner, considering the cost-effectiveness in order to achieve an optimal combination of expected benefits and costs (“best value for money").

Based on FAO guidelines for the project cycle, the BH will prepare an annual procurement plan for the main services and products, which will form the basis for acquisitions orders during implementation. The first procurement plan will be prepared as part of the project inception. The plan should include a description of the goods and services needed to be procured, an estimated budget and source of funding, and the timetable and the methodology to be applied in the procurement process. In situations where exact information is not available, the procurement plan should at least contain reasonable projections, which will be adjusted as the information is available. At the beginning of each year SAyDS/CTNP will update the procurement plan of the project (Appendix 5) for approval by the CEP and the FAO Representative in Argentina.

4.5 MONITORING AND REPORTING

Monitoring and Evaluation of progress in the achievement of project outcomes and objectives will be carried out on the basis of the targets and indicators established in the Project Results Framework (Appendix 1 and description in Sections 2.3 and 2.4). The Project’s Monitoring and Evaluation Plan have been budgeted at USD 154 040 (See Table 4.3, below). Monitoring and evaluation activities will follow FAO and GEF monitoring and evaluation policies and guidelines. The monitoring and evaluation system will also facilitate learning and

mainstreaming of project outcomes and lessons learned with regard to the incorporation and consolidation of good practices in IAS management overall.

4.5.1 Oversight and monitoring responsibilities

The monitoring and evaluation tasks and responsibilities, described in detail in the Project Monitoring Plan (see hereunder) will be achieved through the following: (i) day-to-day monitoring and supervision missions (SAyDS/CTNP and the General Manager of the Beaver Pilot Programme); (ii) technical monitoring of the indicators on the status of the IAS prevention and control framework, containment and/or eradication and the recovery of ecosystems covered by the control pilots (SAyDS/CTNP and General Manager of the Beaver Pilot Programme, in coordination with the actors involved in the containment and/or eradication pilot programmes (Component 3) and by the beaver control and eradication programme (Component 4)); (iii) specific monitoring plans for pilot projects under Components 3 and 4, and awareness-raising and communication activities (Sub-components 1.1.4 and 4.1.7) (SAyDS/CTNP and the General Manager of the Beaver Pilot Programme as well as the actors participating in the pilot programmes); (iv) mid-term and final evaluations (independent consultants and the FAO Evaluation Office); and (v) continual oversight, supervision and monitoring missions (FAO).

At the initiation of the implementation of the GEF Project, SAyDS/CTNP and the General Manager of the Beaver Pilot Programme will establish a project progress monitoring system. Participatory methodologies and mechanisms will be developed for collecting and recording data in support of the monitoring and evaluation of outcome and output indicators. During the project inception workshop (see section 4.5.3 below), monitoring and evaluation tasks will include the following: (i) presentation and clarification (if necessary) of the Project Results Framework with all project actors; (ii) review of monitoring and evaluation indicators and their baseline; (iii) preparation of draft clauses to be included in consultants contracts to ensure they fulfill their duty of submitting monitoring and evaluation reports (if pertinent); and (iv) clarification of monitoring and evaluation task distribution among the different project stakeholders. One of the main workshop outputs will be a detailed monitoring plan, agreed upon by all actors and based on the monitoring and evaluation plan summarized in Section 4.5.4, below.

SAyDS/CTNP and the General Manager of the Beaver Pilot Programme will be in charge of the day-to-day monitoring of project implementation, guided by the preparation and implementation of the AWP/B and followed up through semi-annual PPRs. Preparation of the semi-annual PPRs and AWP/B will result from a unified planning process among the main project stakeholders. As a results-based management tool, AWP/Bs will indicate proposed actions for the following year and will offer the necessary details on the output targets to be achieved; and PPRs will present information on monitoring activities implemented and the achievement of output targets. Contributions to AWP/Bs and PPRs will be prepared via a participatory progress review and planning system with all stakeholders, coordinated by SAyDS/CTNP and the General Manager of the Beaver Pilot Programme and facilitated through project progress review and planning workshops, within the framework of STEEI, the Pilot Programme Coordination Committee (Component 3) and the Inter-Institutional Committee (Component 4). These inputs will be consolidated by SAyDS/CTNP in the draft AWP/B and PPR. An annual project progress review and planning meeting will be held with the participation of FAO, SAyDS/CTNP and the General Manager of the Beaver Pilot Programme so as to complete the AWP/B and PPR. Once completed, the AWP/B and PPR

will be submitted to the CEP for their approval (AWP/B) and review (PPR) and to FAO for approval. AWP/Bs will be prepared in line with the Results Framework (Annex 1) to ensure appropriate fulfillment and monitoring of project outputs and outcomes.

After project approval, the AWP/B for the first year of project implementation will be adjusted (either reduced or extended in time) to synchronize it with an annual reporting calendar. In subsequent years, the AWP/B will follow an annual planning and reporting cycle as specified in section 4.5.3 below.

4.5.2 Indicators and sources of information

To monitor project outputs and outcomes including contributions to global environmental benefits specific indicators have been established in the Results Framework (see Appendix 1). The framework's indicators and means of verification will be applied to monitor both project performance and impact. Following FAO's monitoring procedures and progress reporting formats, data collected will be of sufficient detail to be able to track specific outputs and outcomes and flag project risks early on. Output target indicators will be monitored on a six-monthly basis and outcome target indicators will be monitored on an annual basis, if possible, or as part of the mid-term and final evaluations.

Project output and outcome indicators have been designed to monitor biophysical and socio-economic impacts and effective progress in building and consolidating capacities for managing IAS as regards the regulatory-legal aspects, prevention of introduction systems, early detection and rapid response, and also containment and/or eradication plans and strategies for IAS established in the country.

On-the-ground impact indicators will monitor:

a) **The level of protection and recovery of ecosystems and biodiversity highly or potentially affected by IAS and area covered in hectares**: hectares to which IAS containment, control and/or eradication protocols are applied; hectares freed from specific IAS; improvement in health indicators of the affected ecosystems;
b) **The level of positive socio-economic impact due to IAS control:** improvement in agriculture production indicators after control and/or eradication of IAS (African snail and glossy privet).

Indicators on capacity-building will monitor:

c) **Improvements in institutional capacities for IAS management**: number of scientists, technicians and naturalists registered and active as information providers for the National Information System on IAS; percentage of requests to introduce alien species, duly analyzed by the System; number of trained technicians in border control to avoid the introduction of IAS; percentage of National Parks and Provincial Protected Areas having early detection and rapid response systems; percentage of annual operational plans for Protected Areas across the country having an IAS management strategy; number of conservation agents, including park rangers, trained in prioritization, control and/or eradication of IAS linked to actions for the restoration, composition and resilience of ecosystems.
d) **Level of harmonization of legal, normative and financial frameworks between the national and provincial levels:** number of sectors with harmonized regulatory frameworks; number of persons trained in IAS regulations within the Judiciary system and Public Ministry in IAS norms and regulations; financial mechanisms developed.

e) **Level of knowledge and social awareness on IAS and the National IAS Strategy**: number of persons in populations affected by IAS aware of the risks and control measures.

The main sources of information to support the monitoring and evaluation programme will be the following: (i) participatory workshops and visits to intervention areas where containment and/or eradication pilots are taking place to verify ecosystem recovery indicators; (ii) PPRs prepared by SAyDS/CTNP, with inputs from all project actors; (iii) consulting service reports; (iv) training workshop evaluations; (v) impact assessments and mid-term and final evaluations carried out by independent consultants; (vi) financial reports and budget revisions; (vii) PIRs prepared by FAO/LTO, with the support of the PTM and SAyDS/CNP; and viii) FAO supervisory mission reports.

4.5.3 Reporting Cycle

Specific reports that will be prepared under the M&E program are: (i) Project inception report; Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) annual Project Implementation Review (PIR); (v) Technical Reports; (vi) co-financing Reports; and (vii) Terminal Report. In addition, assessment of the GEF Biodiversity Tracking Tools (METTs) against the baseline (completed during project preparation) will be required at the midterm review and the final project evaluation.

Project Inception Report. After FAO approval of the Project an inception workshop will be held. Immediately after the workshop, SAyDS/CTNP will prepare a project inception report in consultation with the FAO-Ecuador Project Task Manager, and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B, a detailed project monitoring plan based on the monitoring and evaluation plan summery presented in section 4.5.4 below. The draft inception report will be circulated to FAO, CEP for review and comments before its finalization, no later than three months after project start-up. The report should be cleared by the FAO BH, LTO and the FAO-GEF Coordination Unit and uploaded in FPMIS.

Annual Work Plan and Budget (AWP/B). SAyDS/CTNP will submit to the STEEI a draft AWP/B no later than 10 January. The AWP/B should include detailed activities to be implemented by project outputs and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The FAO PTM circulate the draft AWP/B the FAO Project Task Force for comments and the PTM consolidates FAO comments and send them to SAyDS/CTNP who will incorporate the comments. The final version of the AWP/B is send to the CEP for approval and to the FAO for final no-objection and upload in FPMIS by the PTM.

Project Progress Reports (PPR): SAyDS/CTNP will prepare six-monthly PPRs and submit them to the STEEI and the FAO Representation in Argentina no later than 10 July (covering the period January through June) and 10 January (covering the period July through December). The 1st semester six months report should be accompanied by the updated AWP/B, for review and no-objection by FAO. The PPR are used to identify constraints, problems or bottlenecks that

impede timely implementation of project activities and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the project's Results Framework (Appendix 1). The FAO PTM will review the progress reports and collect and consolidates eventual FAO comments from the LTO, the GEF Coordination Unit, and the Budget Holder and provide these comments to SAyDS/CTNP. When comments have been duly incorporated the LTO will give final approval and submit the final PPR to the FAO-GEF coordination Unit for final clearance and upload in FPMIS.

Annual Project Implementation Review (PIR): The LTO supported by, the FAO PTM and with inputs from the SAyDS/CTNP, will prepare an annual PIR covering the period July (the previous year) through June (current year) to be submitted to the GEF Coordination Unit for review and approval no later than 20 July. The FAO-GEF Coordination unit will upload the final report on FAO FPMIS and submit it to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The FAO Representation in Argentina will send the final PIR to the GEF Focal Point of the Government of Argentina for information. The GEF Coordination Unit will provide the updated format when the first PIR is due.

Technical Reports: Technical reports will be prepared as part of project outputs and to document and share project outcomes and lessons learned. The drafts of any technical reports must be submitted by SAyDS/CTNP to the STEEI and to the FAO Representation in Argentina who will share it with the LTO for review and clearance and the FAO-GEF Coordination Unit for information and eventual comments, prior to finalization and publication. Copies of the technical reports will be distributed to the CEP and other project partners as appropriate. The final reports will be posted on the FAO FPMIS by the LTO.

Co-financing Reports: SAyDS/CTNP will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all co-financing partners included in table 4.2 of this project document as well as other partners not foreseen in the Project Document. Each year SAyDS/CTNP will submit the report to the FAO Representation in Argentina before 10 July covering the period July (the previous year) through June (current year).

GEF-5 Tracking Tool: Following the GEF policies and procedures, the tracking tool for the biodiversity focal area will be submitted at three moments: (i) with the project document at CEO endorsement; (ii) at the project's mid-term review; and (iii) with the project's final evaluation or final completion report

Terminal Report: Within two months before the end date of the project SAyDS/CTNP will submit to the STEEI and the FAO Representation in Argentina a draft Terminal Report. The main purpose of the final report is to give guidance at ministerial or senior government level on the policy decisions required for the follow-up of the Project, and to provide the donor with information on how the fund were utilized. The terminal report is accordingly a concise account of the **main products, results, conclusions and recommendations** of the Project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for insuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the future development of the framework for prevention, early detection and

control, containment and eradication of IAS in the context of development priorities at national and provincial levels as well as the in terms of practical application. This report will specifically include the findings of the final evaluation as described in section 4.6 below. A final project review meeting should be held to discuss the draft terminal report with the CEP before it is finalized by SAyDS/CTNP and approved by the FAO LTO, and the FAO-GEF Coordination Unit.

4.5.4 Monitoring and Evaluation Plan Summery

Table 4.3 presents a summary of the main M&E activities, reports, responsible parties and timeframe.

Table 4.3. Summary of main monitoring and evaluation activities

M&E Activity	Persons Responsible	Deadline/ Interval	Estimated Cost
Inception Workshop	SAyDS/CTNP; FAO (GPO with the support of the LTO, PRB and FAO-GEF Coordination Unit)	Two months after project start-up.	USD 3 000
Project Inception Report	SAyDS/CTNP and FAO GPO, approved by the LTO, PRB and FAO-GEF Coordination Unit	Immediately after the inception workshop	USD 925 (one week of the project coordinator's time)
Impact monitoring "in the field"	SAyDS/CTNP; General Manager of Beaver Pilot Programme and other project participants	Continuously	USD 42 790 (5.5 months of the project coordinator's time , 1 month of the IAS expert's time, and travel costs)
Supervision and validation visits of project progress reported in PPRs and PIRs	SAyDS/CTNP; General Manager of the Beaver Pilot Programme; FAO (GPO, LTO, FAO-GEF Coordination Unit)	Annually or as required	Project Coordination visits will be paid from the project's travel budget plus two months of salary of the assistant for the organization of the missions for a total of USD 11 000. Cost of FAO visits will be paid from GEF agency fees
Project Progress Reports (PPR)	SAyDS/CTNP; with inputs from the General Manager of the Beaver Pilot Programme and other institutions participating in project implementation	Semi-annually	USD 10 900 (2 months of the project coordinator's time , 1 month of the IAS expert's time, and 1 month of the assistant's time)
Annual Project Implementation Review (PIR)	FAO (LTO and GPO) with the support of SAyDS/CTNP and the General Manager of the Beaver Pilot Programme. Approval and submission to GEF by FAO-GEF Coordination Unit.	Annually	Paid with funds from GEF agency fees
Technical Reports.	SAyDS/CTNP and the General Manager of the Beaver Pilot Programme; FAO (LTO, GPO)	As pertinent	-
Co-financing Reports	SAyDS/CTNP and the General Manger of the Beaver Pilot Programme, with inputs from other co-financers.	Annually	USD 4500 (3 months of the assistant's time)
Independent Mid-Term Evaluation (MTE)	External consultant, the project's team, including the GEF Coordination Unit and other actors.	Half way through project implementation.	USD 40 000 for external consulting services. USD 1 750 for the evaluation workshop. Travel expenses and time of

M&E Activity	Persons Responsible	Deadline/ Interval	Estimated Cost
			FAO staff will be paid with funds from GEF agency fees.
Independent Final Evaluation (IFE)	External consultant, FAO Independent Evaluation Unit, in consultation with the project's team, including the FAO-GEF Coordination Unit and other actors.	Upon completion of project implementation	USD 40 000 for external consulting services . USD 1 750 for the evaluation workshop. Travel expenses and time of FAO staff will be paid with funds from GEF agency fees.
Final Report	SAyDS/CTNP and General Manager of the Beaver Pilot Programme; FAO (GPO, LTO, FAO-GEF Coordination Unit, TSCR Report Unit)	Two months before end of Implementation Agreement.	USD 925 (one week of the project coordinator's time)
Total Budget			**USD 154 040**

4.6 PROVISIONS FO EVALUATION

After 24 months have elapsed, the project will undergo an independent Mid-Term Evaluation (MTE) conducted by independent consultants and under the overall responsibility of the FAO Evaluation Office (OED). The objective of the MTE is to review progress and effectiveness of implementation in terms of achieving project objective, outcomes and outputs. Findings and recommendations of this review will be shared and discussed in a midterm review workshop and will be instrumental for bringing improvement in the overall project design and execution strategy for the remaining period of the project's term if necessary. FAO will arrange for the MTE in consultation with SAyDS/CTNP and the General Manager of the Beaver Pilot Programme. The review will, *inter alia:*

- review the effectiveness, efficiency and timeliness of project implementation;
- analyze effectiveness of partnership arrangements;
- identify issues requiring decisions and remedial actions;
- propose any mid-course corrections and/or adjustments to the implementation strategy as necessary; and
- Highlight technical achievements and lessons learned derived from project design, implementation and management.

An independent Final Evaluation (FE) will be carried out three months prior to the terminal review meeting of the project partners. Under the overall responsibility and guidance of FAO Office of Evaluation, the FE will aim to identify the project impacts and sustainability of project results and the degree of achievement of long-term results. This Evaluation will also have the purpose of indicating future actions needed to sustain project results, expand on the existing Project in subsequent phases, mainstream and up-scale its products and practices, and disseminate information to management authorities responsible for IAS prevention, early detection, control, containment and/or eradication, to ensure continuity of the processes initiated by the Project.

Some of the critical elements that the MTE and IFE must pay special attention to are the following:

- The degree of awareness and involvement of the local population, including farmers, indigenous communities and pet shops, botanical gardens and the tourism sector

(particularly sports fishing) in IAS prevention, early detection and/or eradication plans.

- The level of understanding and awareness of the sector's institutions making decisions on policies and regulations having an impact on the use of alien species and prevention of IAS introduction and dispersion.
- Degree of institutional and financial sustainability for the implementation of the National IAS Strategy.
- Capacity-building in prevention, control, early detection and rapid response at all important stages for the efficient operation of this framework.
- Progress in the bi-national process with Chile for having a duly-funded bi-national beaver eradication plan, with the necessary capacities and links with private partners and public institutions to ensure its sustainability.
- Participation and representation of women in all formulation and implementation processes of the National IAS Strategy, including the pilot programmes

4.7 COMMUNICATION AND VISABILITY

Recognizing that accurate and efficient communication is of utmost importance for the implementation of the National IAS Strategy, the project has sub-component 1.1.4 *Communication Strategy for the National IAS Strategy* which includes communication elements focused on each of the Component 3 pilot programmes. Furthermore, sub-component 4.1.7 *Communication Strategy on beavers as an IAS* will help towards implementing the pilot programme on beaver eradication and then the PEBEC. These communication and dissemination strategies will reinforce coordination and the support to relevant institutions, raise awareness among the public at large, and greater sensitization in the sites at which components three and four are developed. In this regard, the idea is to disseminate the topic using all means available to social communication (printed media, television, multi-media, participation in fairs, etc.). The approach that includes formal and informal education will help to favour sustainability of IAS knowledge across generations.

Project publications will be a key method to set forth and disseminate Project outcomes and achievements. These publications could be scientific or informative texts on the Project's activities and achievements, in the way of scientific publications, multi-media, postings, etc. They may be based on Technical Reports, depending on the relevance, scientific value, etc. of such reports, or they may be summaries or compilations of a series of Technical Reports or other research work.

Specifically, in order to generate synergies with other intervention or research projects and/or programmes, SAyDS will schedule annual meetings with the programmes and projects executed at the Secretariat. Furthermore, it will disseminate actions, objectives and activities within the MERCOSUR Sub-working Group No. 6 on the Environment (SWG No. 6).

An important point of inter-institutional communication and visibility at the national level is CONADIBIO's STEEI, with regulatory frameworks in force guaranteeing and institutionalizing the broadest participation of state agencies, NGOs and representatives of civil society linked to biodiversity.

SECTION 5 –SUSTAINABILITY OF RESULTS

5.1 SOCIAL SUSTAINABILITY

Overall, the Project's social sustainability is based on a participatory and consensus-building process carried out during the project design. The workshops held in each of the regions of the Federal Council on the Environment (COFEMA) has allowed a broad inter-institutional participation that has been reflected in the expected Project objectives and outcomes, by including the participating institutions and convening key actors identified during the process. In project implementation, broad participation has been ensured at the institutional level with the involvement of STEEI as a central body in developing and implementing the National IAS Strategy and, thus, the Project. At the provincial level, provincial focal points and pilot programme committees will participate (Component 3) as well as the Inter-Institutional Committee and the Consultation Committee (Component 4). Please see Section 4.2.

As mentioned in Section 1.1.1.b, one of the important barriers to promote the implementation of the National IAS Strategy and, above all, to have more funding for this purpose is the lack of analysis and information on the socio-economic costs and the impacts of IAS on native biodiversity. Therefore, the project, through Sub-component 1.1.1 will reinforce information and analysis on the above costs and impacts and thus the link between benefits for biodiversity and the local socio-economic conditions, resulting in greater sustainability for the implementation of the National IAS Strategy. Nonetheless, there are currently the experiences of: local farming populations that suffer loss of their crops because of the African snail; impact on their livelihoods of the Ocloya indigenous communities in the North of Argentina who depend on native forest resources invaded by the glossy privet; and the impact on hydroelectricity caused by the Golden mussel. Within the pilot programmes on containment and cleaning of the African snail and the glossy privet, the project will make an effort to monitor the positive socio-economic impact to reinforce social sustainability.

On the other hand, in the case of IAS introduced for the purpose of production and economic benefits, such as bullfrogs, pets and ornamental animals, there can be a conflict between IAS control and management and the immediate socio-economic benefits. In these cases, the project will work with the affected private sectors and will seek voluntary codes of conduct (Sub-component 1.1.3.a), regulations on responsible use (Sub-component 2.1.1), and inclusion of good practices for controlling IAS within schemes of PES, CSR and environmental certifications (Sub-component 2.1.2).

With regard to a balanced gender participation and benefits, during project design, it was noted that the participation has been quite balanced in the project design consultation workshops (56% males, and 44% females), with a clear majority of women in sectors such as research (60%- 40%), and Education (56% - 44%). The main decision-making collegiate bodies for developing and implementing the National IAS Strategy have a high percentage of women. COFEMA is presided by the Sustainable Development Secretary of Rio Negro Province, who is a woman, and STEEI is mainly made up of women representing the main national agencies. Furthermore, in three of the seven provinces in which the containment and/or eradication pilot programmes will be implemented, the environmental authorities are women (a woman minister in Misiones Province, and two women Secretaries of State in Jujuy and Rio Negro Provinces). Moreover, in Argentina, civil society organizations (even those

participating in the STEEI) are mainly made up of women. According to the information surveyed by the National Centre of Community Organizations (CENOC), 58% of the total staff declared by CSO are women.

During its implementation, the Project will, however, make the greatest efforts to guarantee gender equality and youth participation. Therefore, each component includes actions for promoting human development and gender equality throughout the project's implementation, above all in components 3 and 4 of the pilot programmes. All efforts will be made to guarantee the participation of women and youth when they are not members of participating organizations and institutions, through prior mappings to identify distortive deviations in the prior stages when calling for participation in the different activities. For this purpose, and before convening participants for the different actions, the mapping of key actors will be reviewed and an assessment will be carried out as regards appropriate gender balance and integration. Specific women and youth organizations will be included in the map of actors (for instance, woman peasant committees, youth groups, students' centres, etc.)

With regard to the indigenous peoples, Article 75, paragraph 17 of the 1994 National Constitution recognizes "the ethic and cultural pre-existence of the Argentine indigenous peoples", while guaranteeing respect for their identity and the right to a bilingual and inter-cultural education, the legal personality of their communities and the community ownership of land traditionally occupied by them; ensuring their participation in the management of natural resources and other interests affecting them. So as to ensure that the National IAS Strategy includes IAS issues particularly affecting the indigenous peoples, the Ocloya community initiative in Jujuy province was included in the project for implementing a glossy privet control pilot programme. This problem was raised by the communities themselves in consultations during project design. Besides validating a specific chapter of the National IAS Strategy, this pilot programme will provide lessons learnt related to the social and cultural approach, communication mechanisms and the valorization of community knowledge, which could be applied to other regions with IAS problems affecting indigenous communities.

5.2 ENVIRONMENTAL SUSTAINABILITY

As analyzed in Section 3.1 on Environmental Impact Assessments, this project has been designed to improve –through the National IAS Strategy- the environmental conditions so as to recover the resilience of the systems under IAS pressure. These habitats will thus be able to provide environmental goods and services that so far were disrupted by the presence of IAS. The design of the National IAS Strategy envisages actions in several sectors to guarantee its contribution to environmental sustainability, particularly as regards the national information system. The creation of an *official IAS list* will lead to guidance on regulations and actions for prevention, prioritization and control, thus contributing to environmental sustainability.

Component 1 supports inter-institutional coordination and the integration of technical and scientific knowledge into national and provincial government decision-making levels. And particularly Sub-component 1.4 provides an *internal communication strategy* comprising official agencies, and an *external communication strategy* addressed to the public at large and to actors working as information multipliers and opinion shapers. In this manner, besides the participation of state agents, more actors will be involved, including the public at large.

Furthermore, the integration of specific sectors in the formulation of *voluntary codes of conduct* (flower growing and gardening, landscape architects, zoos, and botanical gardens, pet

shops, etc.) will help to generate socially acceptable conditions to avoid additional environmental pressure, particularly related to different potential spread pathways for these species, even far from the country's points of entry or points of sale.

Training of conservation agents, including park rangers, in techniques regarding early detection, immediate intervention, control and eradication, has given rise to a group of human resources with specific knowledge on IAS that was so far inexistent. Moreover, by training trainers, this knowledge will be replicated in the different jurisdictions, thus guaranteeing field interventions that will contribute to environmental sustainability.

Application of the National IAS Strategy will establish mechanisms for entry control and containment of IAS, particularly along borders and at ports, contributing to other entry prevention actions.

Component 2, which aims at harmonizing regulatory frameworks, especially environmental and productive regulations, will avoid regulatory loopholes that may allow the introduction of IAS. At the same time, the idea is to avoid the creation of incentives for introduction of IAS, by applying the risk analysis mechanisms (designed under Component No. 1) to requests for the entry of new IAS (or their mobility within Argentina when the habitats are different). The inclusion of IAS objectives on the agenda of the Ministers that make up the MERCOSUR Sub-working Group No. 6 on the Environment will provide a regional momentum to setting up common areas for IAS management.

The implementation of validation pilot programmes under Component 3, through direct actions as well as the generation of lessons learnt that will be useful to replicate actions in other regions of Argentina, contribute to environmental sustainability (see global environmental benefits). It is worth highlighting that during the implementation of these pilot programmes, *awareness-raising campaigns* aim at having an informed population, aware of the consequences of IAS, and different approach strategies, who will become key actors contributing directly or indirectly to the National IAS Strategy and thus to environmental sustainability.

In the case of Component 4, environmental sustainability has direct implications on the *Isla Grande* of TDF as well as on Argentina and Chile's mainland. On the Island, the project's actions have the purpose of recovering beaver colonized environments, consistent with the objective of the Bi-National Argentine-Chilean Strategic Plan. Bio-security actions implemented within the framework of the project will continue after its completion. The efforts on the islands in Argentina and Chile help towards local effectiveness and avoid dissemination to the mainland. The Bi-national Strategic Plan will continue after project completion. Joint work under bi-national integration has been carried out for six years, and is a strong stimulus for supporting environmental benefits, particularly because of a governance system that will last throughout time once the project has ended.

5.3 FINANCIAL AND ECONOMIC SUSTAINABILITY

The Project and the National IAS Strategy includes the design of financial instruments to provide financial sustainability to the implementation of the National IAS Strategy. For this purpose, it will explore, among other PES or ecosystem instruments, the application of a surety bond established in the national law on the environment (Law No. 25,675) currently used for other purposes, or included in the law on minimum standards for IAS. Additionally, harmonization of the environmental regulations and IAS productive framework on IAS will result in a series of incentives and penalties that will provide financial sustainability beyond

project duration. At the same time, most of the national and/or provincial intervention programmes in the field to support implementation of the National IAS Strategy are backed by laws that guarantee the contribution of resources from the pertinent budgets (e.g. Law on minimum standards for native forests).

The integration of private production sectors as from the design phase of the National IAS Strategy where they will be able to evaluate the benefits of prevention and rapid response will contribute to generating coordinated input mechanisms in support of long-term financial sustainability. The communication and awareness-raising component will help to improve communication between institutions and with society, thus diminishing pressure on the ecosystem and, at the same time, will promote social mechanisms for sectoral financing (e.g. agriculture, forestry, etc.). The adoption of voluntary codes of conduct for those social actors related to the use of invasive or potentially invasive alien species will support sectoral communication and awareness-raising processes having an impact on the community at large, particularly on emblematic cases (e.g. pets).

Argentina has an important number of incentive-based programmes for research, adaptation, productive processes and intervention. By designing and implementing the National IAS Strategy, and harmonizing regulatory frameworks, direct and indirect tools will be available to support the enforcement and economic sustainability of the National IAS Strategy, especially in the field of research and in the design of field programmes and projects.

5.4 SUSTAINABILITY OF CAPACITIES DEVELOPED

Formulation of the National IAS Strategy is based, among other aspects, on institutional capabilities existing in different agencies directly or indirectly involved with IAS, such as the capacity in place at SENASA and PSA to control and manage IAS pests in agriculture, and to harmonize existing regulatory frameworks. Furthermore, a law on minimum standards for IAS will be proposed, considering the Convention on Biological Diversity (of which Argentina is a party to), to help reinforce political-administrative structures across the country, bringing together the central and provincial governments to provide sustainability to capacity-building.

Capacity-building by the Project to support formulation and implementation of the National IAS Strategy consists of training and updating direct beneficiaries (technicians from SENASA, the Border Patrol, Customs, PSA and PNA), and particularly the training of trainers who will then replicate these actions in their territories and/or institutions (for instance, training of park rangers and provincial conservation agents, tourist agents, pet shop workers and those selling garden ornamental species).

The project will also strengthen IAS information and knowledge management capacities to support decision making processes by improving the interface of the IAS database to make it more user-friendly and connecting in more information sources in the IAS information system and database. The national IAS database has been active since 2002 operated by the Universidad Nacional del Sur and other associated research institutions. Initially the database received support from the IABIN (The Inter-American Biodiversity information Network), but has for the last years functioned independently based on the institutional commitment of the University, which will also be securing its sustainability after the end of the project. The maintenance and continued actualization of the database will continue to be the responsibility of the research institutions in collaboration with SAyDS, who will house the database in its institutional webpage and server.

The project's governance process coordinates two institutions that have the necessary legal support and that, based on this project will mainstream the IAS topic: COFEMA and STEEI. This institutional structure will also provide sustainability to capacity-building after project completion. Federal political participation has been guaranteed for several years through COFEMA and provides a platform for actions that entail involvement of neighbouring provincial jurisdictions.

The inclusion of the IAS problem on the MERCOSUR agenda, coordination of the National IAS Strategy with the national strategy of Brazil, and with actions carried out in this field in Uruguay and Paraguay generate mechanisms of reciprocal responsibilities and commitments. That is how border control capacities are reinforced and methodologies and procedures are established and remain embedded in the agencies involved. Furthermore, joint efforts in research, early warning and immediate response will help each country to have appropriate institutional capabilities.

Within the international and regional contexts, a special case worth mentioning is the Bi-national Argentine-Chilean agreement which gave rise to the Bi-National Strategy for Restoring the Southern Ecosystem affected by Beavers. As a result thereof, actions were designed consistent with these project activities to install a strong governance policy, institutionalized in Tierra del Fuego, Antarctica and South Atlantic Islands, Argentina, by anchoring it in the Provincial Environment Council (created by provincial law on the environment, No. 55). Since this Bi-national Strategy is at an incipient stage, it will help the project to reinforce institutional capacities in a sustained manner in both countries.

5.5 APPROPRIATENESS OF TECHNOLOGIES INTRODUCED

The project will support the use of certain technologies for IAS control, containment and/or eradication. In selecting these technologies, experiences with beavers in other countries and in Argentina will be taken into consideration. One of the objectives of the pilot programme is to test the most cost-efficient technologies for more effective ecosystems and environments in Argentina. In the case of beavers, **only those techniques that meet the standards of humane trapping** will be used (AIHTS standards) for their removal, which ensure an immediate death of the beaver without suffering, as in the case of the Conibear 330 traps and the use of firearms and/or compressed air guns.

5.6 REPLICABILITY AND SCALING-UP

The project's experience of generating a participatory process for formulating and implementing the National IAS Strategy can be replicated in other countries, particularly in those having a long coastline and maritime borders and a federal structure. Pilot programmes for containment and/or eradication are designed for their replication in the country through their mainstreaming into the National IAS Strategy, and can be useful for countries suffering similar invasions. Beaver eradication actions in demonstration units are designed in a manner that allows their scaling up and replication in the PEBEC, supported by parallel pilot experiences in demonstration units in Chile.

APPENDIXES

APPENDIX 1: RESULTS FRAMEWORK

Project outcomes and impact:

Objective/Impact	Baseline	Outcome Indicators	Assumptions
Global Environmental Objective: To strengthened the governance framework across the country to allow for an effective protection of biodiversity against the impacts of Invasive Alien Species (IAS). Project Development Objective: To reinforce the current and future socio-economic benefits stemming from conservation and the sustainable use of biological diversity, including natural resources and ecosystem-based services, by appropriately managing the challenge of biological invasions	Component 1: a) There are no unified border control systems taking into account the risk of IAS introduction or a risk analysis system based on an objective evaluation. b) Many protected areas (PA) carry out IAS control actions and, to a lesser extent, isolated early detection and control actions, but they have no early detection systems. c) < 5% of annual operations plans of the countries PAs have a strategy for IAS management d) Score of 2/15 in the GEF Tracking Tool (Part VI on IAS, questions 1,2,4,5)	Component 1: Outcome 1.1 Increased effectiveness for protecting biodiversity, sensitive ecosystems, health and the economy at the national level by managing the IAS problem. Targets: a) coordinated risk analysis and border control mechanisms agreed upon and, after enactment of the pertinent regulations, 100% of requests for introducing IAS will have been duly analyzed by the system b) early detection and immediate action systems implemented in at least 25% of the National Parks and in five provincial protected areas (PA) across the country, and at ports on the Atlantic coastline c) IAS management strategies included in the annual operations plans (POAs) of at least 25% of the country's protected areas d) Score of 11/15 obtained in the GEF Tracking Tool (Part VI on IAS, questions 1,2, 4, 5)	Component 1: Public agencies at the national level linked to the introduction of species for different purposes agree on the implementation of a common risk analysis system. National agencies responsible for border control include IAS in their inspection procedures. Protected areas under different jurisdictions (national, provincial and municipal) maintain their status and include in their operational planning, the integrated management of the biological invasion problem, and promote training of their technical staff in this matter. The scientific sector and protected area managers are still concerned about biological invasions and convey their knowledge to the community.
	Component 2: Score of 1/6 obtained in the GEF Tracking Tool (Part VI on IAS, question 3)	Component 2: Outcome 2.1: National and provincial legal, regulatory and financial frameworks harmonized and support an effective implementation of the National IAS Strategy. Target: Score of 3/6 obtained in the GEF Tracking Tool (Part VI, question 3)	Component 2: National and provincial governments continue to protect biodiversity within the framework of international agreements and the Argentine regulatory framework, and agree by consensus on the principles for a law on minimum standards for IAS. COFEMA is maintained and reinforced as a federal consensus tool to enforce public

			environmental polices. Participation of SAyDS, through Sub-working Group No. 6 on the Environment, in regional blocs (MERCOSUR, UNASUR, etc.), facilitates regional coordination to protect biodiversity and the strengthening of strategies to fight against IAS at the global level.
	Component 3: Score of 0/5 obtained in the GEF Tracking Tool (Part VI, question 5) a) No recovery of monitored ecosystems in the case of the six pilot programmes b) Score of 7/48 obtained in the GEF Tracking Tool (Parte VI, question 6)	Component 3: Outcome 3.1: Coastal and marine ecosystems protected against IAS through early detection and rapid response measures. Target: Score of 3/5 obtained in the GEF Tracking Tool (Part VI, question 5). Outcome 3.2: Recovery in progress of ecosystems and biodiversity highly or potentially affected by six IAS, and risks for health and the forestry and farming sector mitigated, by applying containment and/or eradication protocols Targets: a) 3-6 containment, control or eradication protocols for IAS prove their effectiveness through ecosystem and biodiversity recovery indicators on xx hectares (baseline and target will be established in year 1) b) Score of 24/48 obtained in GEF Tracking Tool (Part VI, question 6) c) Adjustment of the National IAS Strategy and its implementation based on six reports on lessons learnt from pilot IAS control programmes.	Component 3: Concern about biodiversity conservation and the environment present at government and community levels in Argentina, generating synergetic scenarios for the prevention, control and eradication of IAS. Support still provided by public and private agencies involved in control and eradication actions. Mass media and key actors involved are still important as regards knowledge; and massive involvement of the communities across the country as regards environmental, social and economic impact and consequences of IAS.
	Component 4: 2,100,000 hectares of *Isla Grande de Tierra del Fuego* invaded by beavers (the whole of	Component 4: Outcome 4.1: Native forest and peat bog ecosystems under effective control of the	Component 4: Commitment of rural landowners still in

	the *Isla Grande*). Actions for managing American beavers in Tierra del Fuego limited to the Tierra del Fuego National Park (PNTDF) There is no Plan of Action for the eradication phase of the Bi-National Strategic Plan since the necessary capacity-building is still missing.	American beavers in Tierra del Fuego (TDF) and affected or endangered biodiversity in recovery. Targets: a) 121,280 hectares free from beavers b) Benthic microhabitats in basin watercourses freed from beavers recovered to similar conditions as those watercourses not affected by beavers c) Less organic matter in the sediments of watercourse beds in the basins freed from beavers d) Streams in the Mimica River area and its surroundings recover their structure to become salmon spawning beds again; and e) Assisted recovery of lenga trees (Nothofagus pumilio), cherry trees and Antarctic beeches (Nothofagus Antarctica) in progress in areas affected but not flooded by beavers Outcome 4.2: Bi-national beaver eradication programme in implementation (at least in the Argentine territory of Tierra del Fuego) Target: Bi-national beaver eradication programme in implementation within two to five years after completion of pilot programmes in each country.	place for achieving local eradication objectives. Support of public and private agencies involved in local control and eradication actions still in place through CADIC – CONCICET, APN (Tierra del Fuego National Park) and *Universidad Nacional de Tierra del Fuego*. The bi-national agreement with the Republic of Chile still in place and strengthened with actions of the two parallel projects in both countries. Implementation of coordinated bi-national goals and actions. Mass media and key actors involved still important as regards their knowledge; and massive involvement of the Province's communities with regard to the environmental, social and economic impacts of the American Beaver invasion.

Project Outcomes and Outputs:

Indicators	Baseline (2013)	Target	Milestones in achieving outcome and output goals				Data collection and preparation of reports	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsible for data collection
Component 1: Strengthening institutional capacities at the national and provincial levels for managing IAS								

Outcome 1.1 Outcome 1.1 Increased effectiveness for protecting biodiversity, sensitive ecosystems, health and the economy at the national level by managing the IAS problem.	a) There are no unified border control systems taking into account the risk of IAS introduction or a risk analysis system based on an objective evaluation. b) Many protected areas (PA) carry out IAS control actions and, to a lesser extent, isolated early detection and control actions, but they have no early detection systems. c) < 5% of annual operations plans of the countries PAs have a strategy for IAS management d) Score of 2/15 in the GEF Tracking Tool (Part VI on IAS, questions 1,2,4,5)	a) coordinated risk analysis and border control mechanisms agreed upon and, after enactment of the pertinent regulations, 100% of requests for introducing IAS will have been duly analyzed by the system b) early detection and immediate action systems implemented in at least 25% of the National Parks and in five provincial protected areas (PA) across the country, and at ports on the Atlantic coastline c) IAS management strategies included in the annual operations plans (POAs) of at least 25% of the country's protected areas d) Score of 11/15 obtained in the GEF Tracking Tool (Part VI on IAS, questions 1,2, 4, 5)		d) Score of 7/21 obtained in the GEF Tracking Tool (Part VI on IAS, questions 1,2,4,5)		a) implementation of mechanisms underway; b) systems implemented in at least 25% of PA and ports along the Atlantic coastline; c) IAS management strategies in POAs of at least 25% of PAs; d) Score of 14/21 obtained in GEF Tracking Tool (Part VI on IAS, questions 1,2,4,5)	Risk analysis and border control protocols Protocols for early detection and rapid response systems in PAs GEF Tracking Tool IFE	PEU, SAyDS, SENASA, Customs, PNA, Airport security police, Provincial Protected Area Administrations, CONADIBIO IFE Consultants

Output 1.1.1 The National Information System on IAS includes updated information on: presence, distribution, characteristics and impacts of IAS; experts within and outside Argentina with experience in management and/or taxonomy of species of interest; IAS management projects in Argentina	a) 15 information providers in only three provinces b) 652 registered species and 4500 sites of occurrence c) 120 registered specialists d) 60 registered projects e) 200 queries a year	a) 150 scientists, technicians and naturalists registered and active as information providers in seven COFEMA regions; b) 9300 occurrence sites registered; c) 240 registered experts; d) 120 registered projects; e) at least 1400 annual visits consulting the database at the end of the project	a) 50 providers trained and registered b) At least 825 occurrence sites added e) at least 500 annual queries	a) 30 additional providers trained and registered b) At least 825 new occurrence sites added (50% of descriptions completed with photos attached) c) 60 experts added d) 30 projects added e) at least 800 queries per annum	a) 30 additional providers trained and registered b) At least 825 new occurrence sites added (100% of descriptions completed with photos attached) c) 60 experts added d) 30 projects added e) at least 1100 queries per annum	a) 25 additional providers trained and registered b) At least 825 occurrence sites added e) at least 1400 annual queries	Evaluation reports and lists of participants in training sessions, entered and registered in the database, register of webpage visitors PPR	UNS, PEU, SAyDS, CONADIBIO
Output 1.1.2 Official list of IAS present in the country defined and organized into categories.	There is no official IAS list to guide regulations or prevention, prioritization and control actions.	One official IAS list	Definition of official list categories and the criteria for classifying each species into a given category.	List of Alien Species classified into categories submitted to the consideration of SAyDS	List reviewed by SAyDS and completed in consultation with CONADIBIO's Sub-Committee on IAS and other key actors.	List published as the Official IAS List for the Argentine Republic.	Draft list, reports of consultation meetings, including list of participants, publication of list PPR	PEU, SAyDS, CONADIBIO

Output 1.1.3 National IAS Strategy – guidance document to coordinate actions on communication and education, prevention, early detection and rapid response, priority setting, control and eradication	Argentina has no National IAS Strategy	National IAS Strategy signed by GoA, GoP participating in Pilot Programmes under Components 3 and 4, and representatives of the six COFEMA regions	Draft National IAS Strategy discussed at two national workshops.	National IAS Strategy completed	National IAS Strategy analyzed and approved by SAyDS prior consultation with CONADIBIO's Sub-Committee on IAS. National IAS Strategy signed by GoA, GoP and other key institutions	National IAS Strategy validated, based on the analysis of Pilot Programmes on IAS management (Component 3)	Minutes of consultation meetings, preliminary versions and final version of National IAS Strategy signed. PPR	PEU, SAyDS and CONADIBIO

Output 1.1.3.a Strategy for preventing introduction of IAS in Argentina (Sub-output of the National IAS Strategy)	No strategy for preventing introduction of IAS a) Regional workshops during project preparation led to identifying vectors in a preliminary manner; b) Requests for introducing alien animals are evaluated by the Fauna Directorate, but there is no objective system or protocols to analyze risk as per national requirements. c) Staff responsible for border control trained in monitoring of species which are a health risk but the issue of IAS is unknown. d) No standard regulations on the use of IAS. e) Key actors managing Alien Species have not adopted voluntary codes of conduct related to IAS.	A strategy including: a) List classifying the main introduction vectors and dispersal pathways. b) Risk analysis system and protocols adjusted to include alien species of aquatic and terrestrial vertebrates and plants and two SAyDS technicians trained in their use. c) 30 technicians trained in border control of IAS introduction of IAS (SENASA, Border Patrol, Customs; PSA, PNA) d) Adjustment of regulations on the introduction and use of alien species endorsed by CFEEI. e) two voluntary codes of conduct (for Botanical Gardens (RAJB) and vets and pet shops)	Stakeholder consultation on draft prevention strategy.	a) Complete list of dispersal vectors and pathways b) Risk analysis system and protocols adopted d) Proposal for amending regulations e) All Botanical Gardens of the RAJB applying the voluntary code of conduct.	Prevention strategy included in the National IAS Strategy: b) at least two trained technicians c) At least 30 trained technicians d) Regulations analyzed and endorsed e) Voluntary code of conduct endorsed by vets and pet shops		Minutes of consultation meetings, including list of participants, List of vectors, risk analysis protocols and analyses of some alien species completed, regulations endorsed, voluntary codes agreed upon PRR	SAyDS and PEU, Consultant in legal matters, IAS consultant.

Output 1.1.3.b Early detection and rapid response systems and protocols developed and implemented in national and provincial Protected Areas (PAs).	a) No early detection and rapid response protocols and systems in areas facing a high risk of invasion and in sectors of high conservation value. b) There is trained staff in IAS management techniques in different protected areas but there are no instances for disseminating the experience gained and updating knowledge.	a) At least 15 PAs have early detection and immediate response protocols and systems in place and operational b) At least 80 conservation agents, including park rangers, trained in early detection techniques, immediate response, control and eradication.	a) Draft manual with protocols on monitoring, early detection and immediate response for Protected Areas. b) 20 agents trained	a) Manual distributed and at least five additional PAs and/or natural reserves adopting early detection and immediate response mechanisms in their POAs. b) at least 40 additional agents trained	a) Manual distributed and at least five PAs and/or natural reserves adopting early detection and immediate response mechanisms in their POAs. b) At least 20 additional agents trained	a) At least five PAs and/or natural reserves adopting early detection and immediate response mechanisms in their POAs	Manual, POAs, evaluation reports on training, including list of participants. PPR	PEU, APN, SIFAP, SAyDS
Output 1.1.3.c Prioritization, control and eradication systems developed and implemented for national and provincial Protected Areas (PAs)	a) No systems on prioritization, control and eradication in Protected Areas facing a high risk of invasion or in sectors of high conservation value b) There are several initiatives for controlling IAS in PAs and natural reserves in Argentina. However, in many cases, park rangers do not have enough technical capabilities to increase the efficiency of their actions.	a) At least15 PAs have prioritization, control and eradication systems in place and operational b) At least 80 conservation agents, including park rangers, trained in IAS prioritization, control and/or eradication techniques, linked to ecosystem restoration, composition and resilience actions	b) 20 agents trained	a) Prioritization, control and eradication systems included in the POAs of at least five provincial PAs and/or natural reserves. b) 40 additional agents trained	a) Prioritization, control and eradication systems included in the POAs of at least five additional provincial PAs and/or natural reserves b) 20 additional agents trained	a) prioritization, control and eradication systems included in the POAs of at least five additional provincial PAs and/or natural reserves.	System document, POAs, evaluation reports on training sessions, including the list of participants. PPR	PEU, APN, SIFAP, SAyDS

<u>Output 1.1.4</u> Knowledge and perception on IAS and the National IAS Strategy increased by the end of the project by implementing a public communication and awareness-raising strategy (ECCP – particularly in support of the six pilot programmes, Outputs 3.2.1-6)	a) Communication to official agencies: no communication mechanisms specifically designed to bring together all actors related to IAS and to ensure information outreach. The degree of knowledge is heterogeneous and the use of IAS-related terminology is ambiguous or mistaken. b) Communication to the public at large: there is spread out communication generated spontaneously in the mass media. Most journalists do not specialize in IAS. c) At different educational levels, IAS and their impact is not included in the curricula.	ECCP implemented through communication measures focused on: a) official agencies; b) the public at large; c) children and youth	Baseline studies on the level of knowledge and perception on IAS of the three focus groups: a) National IAS Strategy isologotype and printed material designed; presentation on the National IAS Strategy distributed; brochures, posters and banners designed and distributed; two semi-annual newsletters distributed; and website permanently updated. b) "TV 36" and radio spots and announcement on IAS and the National IAS Strategy in the printed media; interviews in the mass media;	a) two semi-annual newsletters distributed; and website permanently updated b) "TV 36"and radio spots and announcement on IAS and National IAS Strategy in printed media; interviews with the mass media promoting the National IAS Strategy c) Coordination with the national and provincial Ministries of Education; curricular contents, didactic material for teachers and students at different levels, and interactive games designed.	a) redistribution of brochures and posters; two semi-annual newsletters distributed; and web site permanently updated b) "TV 36" and radio spots and announcement on IAS and National IAS Strategy in printed media; interviews in the mass media promoting the National IAS Strategy c) Teaching material posted on the website of the National and Provincial Ministries of Education, and video-game designed on IAS and their biological, ecological, health, economic, social and cultural impact.	Impact study on the level of knowledge (internal and external) and the social perception (external) on IAS and review of ECCP, if necessary. a) two semi-annual newsletters distributed; and website permanently updated. b) "TV 36" and radio spots and announcement on IAS and National IAS Strategy in printed media; interviews in mass media promoting the National IAS Strategy c) application of pilot programme outcomes to curricula and update of didactic material and interactive games.	Baseline and impact studies with regard to communication strategy, brochures, posters, banners, newsletters, visits to website, "TV 36" and radio spots, announcement in printed media, interviews. PPR	PEU communication consultant. SAyDS person responsible for press matters

Indicators	Baseline (2013)	Goal	Milestones in achieving Outcome and Output goals				Data collection and preparation of reports	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsible for data collection
Component 2: Strengthening regulatory frameworks and financing mechanisms in support of the National IAS Strategy implementation								
Outcome 2.1 National and provincial legal, regulatory and financial frameworks harmonized and support an effective implementation of the National IAS Strategy.	Score of 1/6 in the GEF Tracking Tool (Part VI on IAS, question 3)	Score of 3/6 obtained in the GEF Tracking Tool (Part VI on IAS, question 3)		Score of 1/6 in the GEF Tracking Tool (Part VI on EEI, question 3)		Score of 3/6 in the GEF Tracking Tool (Part VI on IAS, question 3)	Sector-based regulations, bill GEF Tracking Tool IFE	PEU, SAyDS, Legal expert IFE Consultants
Output 2.1.1 Harmonized regulatory frameworks on IAS among jurisdictions and sectors (agriculture, forestry, fish farming, tourism, health, foreign trade, transport and the environment)	The current legal framework includes different views, contradictions, negative incentives, not much coordination among different governmental sectors and jurisdictions. (2012)	a) Regulatory frameworks harmonized in eight sectors b) 150 persons trained on IAS regulations in the Judiciary and Public Ministry	Initial consensus for a common vision on sectors and jurisdictions, and regulations to be harmonized and/or supplemented within the Framework of CONADIBIO's Sub-Committee on IAS	a) Regulatory frameworks harmonized in two sectors. b) 75 persons trained on IAS regulations	a) Regulatory frameworks harmonized in three additional sectors. b) 75 additional persons trained on IAS regulations	a) Regulatory frameworks harmonized in three additional sectors.	Minutes on the discussions and initial consensus reached, supplemented regulations, evaluation reports on training sessions, including list of participants. PPR	PEU Legal expert

Output 2.1.2 Financing mechanisms developed for the National IAS Strategy.	The current legal system does not envisage payment for environmental services as regards IAS, there are no funding mechanisms for benefits obtained by privates, and neither has the environmental insurance been regulated.	At least 1 (one) mechanisms agreed upon and developed (PES Fund, environmental risk insurance or charge for IAS, inclusion of good IAS prevention practices in FSC certifications, organic fish farming, environmentally-friendly tourism or CSR schemes)	Feasibility study of different mechanisms. Three evaluation workshops on options and prioritization of a mechanism to be developed.	At least one mechanism designed and agreed upon by consensus	Funding mechanism component in the national law on minimum standards drafted		Workshop reports, including list of participants, mechanism document PPR	PEU Legal expert and IAS economist
Output 2.1.3 Law on minimum standards and budget for IAS developed in a participatory manner and proposed to Congress	There is no law on minimum standards for IAS	Law on minimum standards and budget proposed to Congress	Two (2) regional workshops and one (1) national workshop on the contents of the Law	Four (4) regional workshops on the contents of the Law Two (2) workshops with legislators Specific offenses and penalties related to IAS duly outlined	Law proposal submitted to Congress Two (2) publications on the essential elements of the law and conclusions of formulation workshops	Support to legislative process Two (2) publications on the law	Records containing agreements reached at workshops, proposed bill PPR	PEU Legal Expert

Output 2.1.4 IAS topic included in the Ministerial Agenda of the MERCOSUR Sub-Working Group No. 6	IAS topic partly integrated in the MERCOSUR regional agenda	IAS included in the agenda		Inclusion of the IAS topic on the MERCOSUR agenda	Publication on IAS and National IAS Strategy within MERCOSUR (Prepared within the framework of the communication strategy)	Common principles formally established among MERCOSUR member countries.	MERCOSUR Minutes, publication PPR	PEU, SAyDS, legal expert

Indicators	Baseline (2013)	Goal	Milestones in achieving outcome and output goals				Data collection and preparation of reports	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsible for data Collection
Component 3: Validating and implementing IAS management protocols, prioritized by taxonomic categories and ecosystems, and included in the National IAS Strategy.								

Outcome 3.1 Coastal and marine ecosystems protected against IAS through early detection and rapid response measures.	Score of 0/5 obtained in the GEF Tracking Tool (Part VI, question 5)	Score of 3/5 obtained in the GEF Tracking Tool (part VI, question 5)		Score of 2/5 obtained in the GEF Tracking Tool (Part VI, question 5)		Score of 3/5 obtained in the GEF Tracking Tool (Part VI, question 5)		
Output 3.1.1 Knowledge on IAS present in ports and surrounding areas along the Atlantic coast of Argentina completed, and implementation of system for IAS early detection, dispersal prevention and rapid response for managing new invasions in implementation	a) There are preliminary lists of IAS in ports and a wealth of knowledge on the problem of biological invasions along the Argentine coast and reference collections (Argentine Natural Science Museum, CENPAT) b) There is a draft national strategy and management protocol on ballast water applied by PNA. There are no active systems for searching species and no early detection, prevention, dispersal or control systems.	a) Taxonomic lists updated and completed including IAS present in at least three ports on the Atlantic coast. b) Early detection system and monitoring and rapid response protocol adopted by at least three ports.	b) Monitoring strategy to detect the presence of IAS developed in at least three ports along the Argentine coast.	a) Inventory and collection of reference species of plankton and benthos organisms in at least three ports. b) Monitoring protocol developed, reviewed and agreed upon by consensus by experts	a) Complete taxonomic lists updated for at least three ports. b) Monitoring and rapid response protocol adopted for at least two ports.	b) Monitoring and rapid response protocol adopted by at least three ports	Collection of specimens, taxonomic lists, protocols. PPR	CENPAT, CADYC, IADO, I. STORNI, UBA, UNMdP, UNS, UNPat. SAyDS Working Group on Aquatic Resources

<u>Outcome 3.2</u> Recovery in progress of ecosystems and biodiversity highly or potentially affected by six IAS, and risks for health and the forestry and farming sector mitigated, by applying containment and/or eradication protocols	a) There is no ecosystem recovery as monitored in the case of all 6 pilot programmes. b) Score of 7/48 obtained in the GEF Tracking Tool (Part VI, question 6)	a) 3-6 containment, control or eradication protocols for IAS prove their effectiveness through ecosystem and biodiversity recovery indicators on xx hectares (baseline and target will be established in year 1) b) Score of 24/48 obtained in GEF Tracking Tool (Part VI, question 6) c) Adjustment of the National IAS Strategy and its implementation based on six reports on lessons learnt from pilot IAS control programmes.	a) Indicators and their baseline established for six (6) protocols			a) 3-6 IAS control protocols show their effectiveness through ecosystem and biodiversity recovery indicators (compared to the baseline established in year 1) b) Score of 24/48 obtained in the GEF Tracking Tool (Part VI, question 6) c) adjustments to the National IAS Strategy and its implementation based on six (6) reports on lessons learnt from the pilot programme on IAS control	Monitoring systems for each pilot programme IFE	IAS Consultant, GoP and institutions participating in pilot programmes IFE Consultants

<u>Output 3.2.1</u> Competent authorities and the population at large are informed through a communication strategy on the risks related to the spread of the **red-bellied tree squirrel** and other species used as pets (in coordination with the ECCP, Output 1.1.4).	a) Preliminary evaluations (*Universidad Nacional de Luján*) show contrasting public views between people concerned about the damages produced by squirrels and others that consider them charismatic animals. There are preliminary dissemination actions in areas invaded by squirrels. b) There are no resolutions declaring the red-bellied squirrel a harmful species.	a) 70% of competent authorities and the population of the selected sites are aware of the negative impact of squirrels and support their control b) One (1) SAyDS resolution and three (3) provincial resolutions adopted, declaring red-bellied squirrels a harmful species.	a) Social actors related to squirrel invasion identified	a) Analysis of baseline as regards public perception among the site's inhabitants and communication strategy designed. b) One (1) SAyDS draft resolution and three (3) provincial draft resolutions of BsAs, Santa Fe and Córdoba provinces.	a) Implementation of 50% of the strategy targeted to schools and pets shops, technicians of the municipalities and community centres of the site b) Four (4) draft resolutions disseminated among provincial and municipal authorities and at legislative and judicial level.	a) Full implementation of strategy targeted to schools and pet shops, technicians from municipalities and community centres; and analysis of impact on public perception in the site, and communication strategy adjusted according to the outcome b) Four (4) draft resolutions adopted	Perception analysis, communication strategy, minutes approving resolutions. PPR	Universidad Nacional de Luján, IAS consultant, communication consultant

<u>Output 3.2.2</u> The invasion of the **Didymo algae detained** in areas of high conservation value in the provinces of Río Negro, Neuquén, and Chubut	This alga lives in streams and lakes in the Cordillera areas of Chubut, Neuquén and Río Negro. Preliminary analyses have been carried out and a few critical areas free from this invasion have been identified, mainly within national Parks. The inter-jurisdictional working committee on the dydimo alga identified the need to reinforce vector control actions (cleaning of fishing and navigation gear) and communication activities. SENASA, Customs and PSA inspect luggage, and other unauthorized goods. So far no inspections or cleaning of fishing gear have been carried out.	The risk of didymo algae invasion in at least 10 areas of high conservation value is mitigated through measures related to the voluntary cleaning of fishing gear in 20 municipalities of the affected area, and outreach actions (in coordination with the ECCP, Output 1.1.4)	a) Network established in at least three provinces and comprising at least 40 trained informants (park rangers, conservation agents and fishing guides) b) GIS developed, combining data on hydrography, tourist activities and algae distribution c) Communication strategy developed to promote and guide gear cleaning actions d) Agreements established with SENASA, Customs and PSA to include fishing gear among the items to be inspected at airports.	a) Systematized and centralized information and an annual report on the status of algae invasion in Patagonia; b) At least ten high priority areas for invasion prevention identified; c) Brochures on the need for cleaning fishing gear and related procedures distributed at airports in the provinces (Chubut, Neuquén and Río Negro) and in 10 potentially affected municipalities e) 10 gear cleaning pieces of equipment, and dissemination posters distributed in at least 10 municipalities	a) An annual report on the status of algae invasion in Patagonia; c) Brochures on the need for cleaning fishing gear and related procedures distributed in at least 10 more municipalities that could be potentially affected by the algae e) 10 gear cleaning machines, and dissemination posters distributed in at least 10 more municipalities.	a) An annual report on the status of algae invasion in Patagonia	Annual report, brochures, field verification of posters and equipment installation PPR	Environment, Tourism and Fisheries Jurisdictional authorities, SAyDS, GNA, PNA.

<u>Output 3.2.3</u> Control of **tamarisks (salt cedars)** and restoration of biodiversity and ecosystem services in two natural protected areas (Ramsar sites of the Guanacache, Desaguadero and Del Bebedero Lakes and Llancanelo Lake) of a high conservation value, in the Cuyo region	There are preliminary tests for controlling tamarisks in national parks and other protected areas. There are precedents on the habitat requirements for germination and establishment of tamarisk seedlings in arid areas in Argentina.	Control of **tamarisk** and restoration of biodiversity and ecosystem services in 180 ha (90 ha in the Llancanelo lake area and 90 hectares in the area of Guanacache, Desaguadero and Del Bebedero lakes)	a) Baseline survey on the status and composition of native vegetation, distribution of tamarisks in intervention areas, and at least five (5) areas identified for control actions.	b) 45 hectares of the main forest at Laguna de Llancanelo lake and 45 hectares in Guanacache, Desaguadero and Del Bebedero lakes free from tamarisks; c) Seeds of native plants collected and at least 3000 plants produced for restoration	b) 90 hectares of the main forest at Laguna de Llancanelo Lake and 90 hectares in Guanacache, Desaguadero and Del Bebedero Lakes, free from tamarisks; c) Transplant of native plants on 180 hectares free of tamarisks	a) Monitoring of the impact on native vegetation recovery, and control of re-invasion	Baseline report, report regarding impact on recovery, field verification PPR	SAyDS Mendoza, Conservation and Protected Area Directorate

Output 3.2.4 Biodiversity of amphibians in Argentina's wetlands protected against the invasion of bullfrogs by implementing a national strategy on bullfrog management.	There is no systematized knowledge on the distribution of bullfrogs or on related farming activities (it is estimated that there are at least ten spontaneous populations of this species in the country's natural environments), and neither are there coordinated measures to prevent and control invasions. There is no information on the economic impact of the farming activity and neither have costs been quantified on potential escapes or spontaneous populations. Although there are no precedents for controlling this species in the country, there is experience in other countries of the region, including a management manual published by CONABIO (Mexico).	A national strategy implementation, including: a) 100% of active and inactive farms and the distribution of the species in the country surveyed; b) A proposal on supplementing the regulations governing bullfrog farms; c) Control protocols validated; d) A communication strategy coordinated with the National IAS Strategy's ECCP (Output 1.1.4).	a) Consult members of the Argentine Herpetology Association on new records of occurrence of the species and national information network on bullfrogs set up (coordinated by DFS), with a national database.	a) Active and inactive farms and the occurrence of spontaneous populations in nearby natural environments surveyed in 50% of the country's provinces; b) Existing regulations for the species' farming, analyzed c) Control protocols developed d) Educational and outreach material on bullfrogs developed and disseminated.	Draft national strategy developed on bullfrog management a) Active and inactive farms and occurrence of spontaneous populations in nearby natural environments, surveyed in 100% of the country's provinces; c) validation of control protocols underway d) Outreach material in national media developed and disseminated	National strategy on bullfrog management adopted by SAyDS and provincial governments of the most affected provinces, within the framework of CONADIBIO b) A proposal for supplementary rules and regulations presented to COFEMA and DFS. c) Control protocols validated and lessons learnt duly documented d) communication strategy operational	National strategy document; minutes of the consultation meetings, including list of participants; populated database; analysis and proposal of regulatory tools; education and outreach material PPR	SAyDS, AHA, national universities and research centres, education consultant

Output 3.1.5 Biodiversity of the Paranaense jungle protected against the invasion of the **Giant African Snail** by applying control and eradication measures, together with public health measures related to this IAS.	There is no full survey on the hectares invaded by the snail. There are communication campaigns to encourage the reporting of any snails detected, including a free-toll number for such reporting. Intensive control actions have been carried out but there is no objective evaluation about the feasibility for eradication.	Density and distribution of snails reduced by at least 25% compared to the baseline to be established at pilot programme start-up, through control, eradication and communication measures (coordinated with the ECCP, Output 1.1.4).	Density study on the snail's distribution and feasibility of control and containment or eradication options, and decision made on the best option.	Spread out of invasion stopped through communication, control and/or eradication measures.	Spread out of the invasion reduced through communication, control and/or eradication measures.	Density and distribution of this snail reduced by at least 25% through communication, control and/or eradication measures; Snail eradication plan across the whole of Argentina (if full eradication proves to be feasible)	Density study and feasibility of measures; monitoring report on progress of the invasion. PPR	SAyDS, communication consultant, SENASA
Output 3.1.6 Recovery of plant species of the native forest in NOA and of the livelihood of the Ocloya indigenous community, dependent on these native forests, by reducing the density and area affected by the **glossy privet** invasion.	Representatives of the Ocloya community expressed their concern about the spread of the glossy privet in the native forest they traditionally use.[80] There are no systematic control actions as regards IAS in this area, but there is experience in invaded ecosystems in Argentina and other countries. No restoration actions have been implemented.	At least 20 ha under glossy privet control resulting in a reduction of at least 50% in glossy privet density, and assisted restoration using at least 1500 native plants, planted with community and gender participation apporach.	Priority areas for control identified, adaptation-based management programme for invasions developed, and species for assisted restoration identified according to their traditional use and ecological functions.	At least 10 hectares under control as regards glossy privet, resulting in a reduction of at least 25% in glossy privet density, and 1500 plants for assisted restoration produced by the community.	At least 20 hectares under control as regards glossy privet, resulting in a reduction of at least 50% in glossy privet density and assisted restoration with at least 750 native plants.	Outcomes of control duly monitored, and supplementary measures implemented, as well as assisted restoration with at least 750 native plants.	Decision Minutes on the priority areas for control, and plants for restoration purposes duly signed by the communities; field verification and outcome monitoring reports. PPR	Ocloya Community, SMA Jujuy

[80] Ha affected will be confirmed during the first year of project implementation

Indicators	Baseline (2013)	Goal	Milestones in achieving outcome and output goals				Data collection and preparation of reports	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsible for data collection
Component 4: Developing a Pilot Programme to eradicate American Beavers from Tierra del Fuego Province, based on the governance of Invasive Alien Species.								

Outcome 4.1 Native forest and peat bog ecosystems under effective control of the American beavers in Tierra del Fuego (TDF) and affected or endangered biodiversity in recovery. [81]	2,100,000 hectares of *Isla Grande de Tierra del Fuego* invaded by beavers (the whole of the Isla Grande island). American beaver management actions in Tierra del Fuego limited to the Tierra del Fuego National Park (PNTDF)	b) Benthic microhabitats in basin watercourses freed from beavers recovered to similar conditions as those watercourses not affected by beavers c) Less organic matter in the sediments of watercourse beds in the basins freed from beavers d) Streams in the Mimica River area and its surroundings recover their structure to become salmon spawning beds again; and e) Assisted recovery of lenga trees (Nothofagus pumilio), cherry trees and Antarctic beeches (Nothofagus Antarctica) in progress in areas affected but not flooded by beavers	a) 60,720 hectares being freed from beavers in the Pilot Areas of Olivia and Tierra Mayor, Asturiana Stream, Mimica Stream and South of PNTDF	a) 60,720 hectares freed, and 60,560 hectares being freed from beavers, including the Pilot Areas of Arroyo Gamma, Sub-basin of Valdéz River, and Malengüena River	b) Benthonic microhabitat recovered in watercourses freed from beavers in year 1. c) Organic matter in sediments diminishes in the basins freed from beavers in year 1.	b) Benthonic microhabitat recovered in watercourses freed from beavers in year 2. c) Organic matter in sediments diminishes in the basins freed from beavers in year 2. d) Structure of salmon spawning beds recovered in Mimica River. e) Recovery of Lenga, Cherry trees and Antarctic beech underway by introducing seedlings in the basin freed from beavers in year 1	Field verification; Verification reports on areas free of beavers, Monitoring reports on recovery and sediment reduction. Mid-term and final evaluations	Inter-Institutional Committee, with the participation of the General Manger

[81] Biodiversity recovery indicators for land environments will be applied for longer term than the project's duration (10-20 years). Biodiversity recovery indicators for aquatic environments will be applied within the project's duration

Output 4.1.1 Governance and management structure for the Beaver Control and Eradication Programme, developed and operational.	National Advisory Committee to the Bi-National Agreement's Focal Point.	a) An Inter-Institutional Governance and Management Committee for the Beaver Programme created and operational, holding at least two meetings a year and Governance and Management System of the Pilot Programme on Beaver Eradication approved by the Committee. b) Programme management team established and operational. c) Social Participation Group established and operational	a) Inter-institutional Committee created and operational, holding at least two meetings with an attendance of over 80% and Governance and Management System approved. b) Management team implementing the project POA in an efficient and effective manner c) Social participation group operational	a) Inter-Institutional Committee operational, holding at least two meetings, with an attendance of over 80% b) Management team implementing project POA in an efficient and effective manner c) Social participation group operational, and holding at least one meeting a year.	a) Inter-Institutional Committee operational, holding at least two meetings, with an attendance of over 80% b) Management team implementing project POA in an efficient and effective manner c) Social participation group operational, and holding at least one meeting a year.	a) Inter-Institutional Committee operational, holding at least two meetings, with an attendance of over 80% b) Management team implementing project POA in an efficient and effective manner c) Social participation group operational, and holding at least one meeting a year.	Minutes setting up the committee and semi-annual meetings; technical team contracts. PPR	Chairperson of the Committee and technical team consultants
Output 4.1.2 Operational Plans and Eradication Protocols (POEs) for each of the Demonstration Units (DUs) under different	POE drafts were outlined during this project's preparation. a) There is an agreement between SAyDS and the Environment and Sustainable	7 POEs for DUs including: a) inter-institutional agreements and agreements with other stakeholders for the implementation of	7 POEs completed, based on baseline findings including a) Agreements formalized between SAyDS,				POE for DUs; Agreements signed; Report on baseline and recovery indicators PPR	General Manager of Component 4 based on reports of Research Groups, Person Responsible for

ownership and invasion levels: 1) three DU for eradication in private property land; 2) three DU for eradication in PAs; and 3) one DU for eradication in mixed private-public lands.	Development Secretariat of TDF (SDSyA-TDF) to implement control and eradication actions. There are no agreements with other key partners. b) Data on the density of active colonies available but not updated for River Olivia and Valle de Tierra Mayor. Densities published of 0.5 to 2.05 colonies/linear km of watercourse in forests and from 0.1 to 0.6 colonies/km in ecotones. c) There are no recovery indicators, but the effects of beavers on ecosystems and land and aquatic communities are known and can be used to propose biodiversity recovery indicators.	the Plans; b) baseline of beaver population density in DU and degree of degradation of the ecosystem; c) biodiversity recovery indicators (forest, grassland, and physical structure of riverbed) for monitoring the effectiveness of the implementation of the plans.	SDSyA-TDF, and other relevant institutions[82] b) Baseline of beaver population density and ecosystem degradation established for DUs. c) Recovery indicators identified.					spatial data and GIS. Inter-Institutional Committee.
Output 4.1.3 Capacities strengthened for managing and	Knowledge on the population dynamics, effects, impact, control, eradication and benefits	a) 150 persons at provincial institutions, the authorities, and	a) 100 persons trained in IAS, with special emphasis on				Material used, list of participants and their final tests; SIG, maps,	General Manager based on reports of those

[82] Academic and scientific-technical institutions (CADIC, UNTdF, CIEFAP), National Park Administration, National Ministry of Security, Security Secretariat - Tierra del Fuego Province, Provincial Civil Defense, Tierra del Fuego; Federal Public Income Administration (AFIP); Museum Directorate Tierra del Fuego Province; Rural Association, Tierra del Fuego; Civil Society Organizations; Oil Companies; Farms

eradicating beavers including human resources and instruments for planning, implementation and monitoring.	related to beaver eradication partially known to different actors/sectors, but there is no experience in eradicating invasive mammals at a large scale in Argentina. APN TDF has experience in training on invasive alien species and their management and experience in beaver management. SAyDS, SDSyA-TDF, CADIC and UNdTdF have experience and knowledge on beaver management and there is research on the ecology of dispersion, population genetics, behaviour and impact. Farms have experience in beaver management but with no assessment of negative environmental impacts. b) Skills as regards geo-reference information are spread out among several of the province's agencies. There is no single, specific Geographic Information System for beaver management.	private land owners, forestry, oil and livestock sectors have the capacities to support POE implementation (trainees shall obtain an average score of 75% in the final test) b) Geographic Information System (GIS) and beaver population density maps for TDF, particularly at DUs, developed.	beavers, related problems and their management; 50 persons trained in operational organization for beaver eradication b) GIS and beaver maps developed.				brochures and webpage PPR	responsible for training; GIS and communication; Heads of Operations; Inter-Institutional Committee Secretariat

Output 4.1.4 Trappers, hunters and supervisors have appropriate capacities for the effective application of eradication protocols.	No human resources (Trappers, hunters, supervisors) with capacities for beaver eradication field operations in Tierra del Fuego	150 – 300 trappers, hunters and supervisors trained in protocol application (trainees obtaining an average score of 75% in the final test).	150 – 300, obtaining an average score of 75% in the final test.				Material used; list of participants and final tests; PPR	General Manager with inputs from person Responsible for Training, Responsible for Communication, Heads of Operations.
Output 4.1.5 POE implemented in DUs	Beaver eradication actions implemented only in the TDF National Park (PNTDF)	7 POEs implemented in 7 DUs	4 POEs implemented at DUs: 1. Olivia and Tierra Mayor. 2. South of Tierra del Fuego National Park. 3. Asturiana Stream. 4. Rivers Mimica, Inn and Indio.	3 additional POEs implemented at DUs: 5. River Valdéz Sub-basin. 6. Gamma Stream. 7. Malengüena River			Verification of positive eradication in the Pilot Areas. Periodic and final reports on each of the Pilot Areas. PPR	General Manager with inputs from the Verification Group, Heads of Operations, and person responsible for spatial data and GIS.

Output 4.1.6 Permanent Bio-security systems (control, monitoring and prevention of re-invasion) established including: bio-security plan; systematic monitoring of ecosystem recovery indicators (see Outcome 4.1); and sustainable financing.	American Beaver management actions limited to TDF National Park; no hectares under permanent control, systematic monitoring and prevention.	a) At least 160 persons trained in bio-security and re-invasion monitoring b) Database on actions of the Bio-security Plan for the whole Pilot Programme. c) 121,280 ha in 7 DUs under permanent control, monitoring and prevention of re-invasion, keeping beaver population at a level with no adverse impact on the native forest and peat bog ecosystems.		a) At least 80 persons trained. b) Database on actions of the Bio-Security Plan established. c) 71,920 hectares under permanent control, monitoring and prevention at 4 DUs: 1. Olivia and Tierra Mayor. 2. South of Tierra del Fuego National Park. 3. Asturiana Stream 4. River Mimica, Inn and Indio	a) At least 80 more persons trained b) Database on actions of the Bio-Security Plan updated. c) 121,280 hectares at 7 DUs under permanent control, monitoring and prevention of re-invasion added to the previous DUs: 5. River Valdéz Sub-basin. 6. Gamma Stream. 7. Malengüena River	b) Database on actions of the Bio-Security Plan updated. c) 121,280 hectares at 7 DUs under permanent control, monitoring and prevention of re-invasion and ecosystem recovery monitored.	Field verification carried out. Periodic reports on bio-security activities. Sustained absence of beavers throughout time.	Inter-Institutional Committee, with the participation of the General Manager
Output 4.1.7 Increased knowledge and understanding of the TDF population on beaver invasion and the control measures at the end of Project through the implementation of a communication strategy.	There are spread out communication activities, generated spontaneously within the mass media. No objective information on the population's degree of knowledge and perception	a) Brochures and webpage prepared on the eradication pilot programme, b) Lessons learnt and outcomes of the Beaver Pilot Programme systematized and published	a) Brochures and webpage information prepared	a) Brochures distributed and webpage updated.	a) Brochures distributed and webpage updated	b) Lessons learnt and outcomes of the Beaver Pilot Programme, systematized and published	Brochures, visits to webpage	Responsible for the Component's communication, with inputs from the Governance and Operational Management System of the Beaver Pilot Programme.
Outcome 4.2	There is no Plan of	Bi-national beaver				Bi-national		Inter-

Bi-national beaver eradication programme in implementation (at least in the Argentine territory of Tierra del Fuego)	Action for the Eradication Phase of the Bi-National Strategic Plan, and there is still capacity-building work to do.	eradication programme in implementation within two to five years after completion of pilot programmes in each country.				beaver eradication programme agreed between the two countries		Institutional Committee, General Manager.
Output 4.2.1 Chile and Argentina exchange experiences and coordinate the leaning process on the Pilot Programmes on control and eradication, which processes will also inform the National IAS Strategy	Bi-national process and agreement established; it is necessary to have pilot experiences systematized and shared between both countries in a coordinated manner.	a) Three (3) bi-national workshops to exchange experiences and coordinate pilot learning process. b) One (1) national workshop to provide feedback to the National IAS Strategy.	a) One (1) bi-national workshop to coordinate pilot projects	a) One (1) bi-national workshop for exchange of experiences and systematic learning	a) One (1) bi-national workshop for exchange of experiences and systematic learning b) One (1) national workshop for feedback into the National IAS Strategy.		Minutes and other documents of bi-national meetings and list of participants. Documents on outcome and lessons learnt published. PPR	Inter-Institutional Committee, General Manager, Responsible for Communication .
Output 4.2.2 Governance framework and Bi-national beaver eradication programme agreed upon	There is a Bi-National Strategic Plan for beaver eradication in the south of Patagonia, but there is no governance framework and Bi-national Eradication Programme.	At least two bi-national workshops will have led to agreement on the governance framework and Bi-National Programme.			One (1) bi-national workshop reaches an agreement on the governance framework and the work plan and process for preparing the bi-national eradication programme.	One (1) workshop for validation and agreement on the bi-national eradication programme for beavers and its implementation plan.	Minutes and other bi-national meeting documents, and list of participants Bi-National Programme Document agreed upon PPR	Inter-Institutional Committee, with the participation of the General Manager

Indicators	Baseline (2013)	Goal	Milestones in achieving outcome and output goals				Data collection and preparation of reports	
			Year 1	Year 2	Year 3	Year 4	Means of Verification	Responsible for data collection
Component 5: Project monitoring and evaluation and information outreach								
Outcome 5.1 The implementation of the project is based on results-based management and results and lessons learned are applied in future operations.	Project results framework with indicators, baseline and outcome and output targets	Project outcomes are achieved and sustained		30-40% progress in achieving project outcomes		Project outcomes are achieved and prove to be sustainable	Mid-term and final evaluations PPR, project completion report	SAyDS FAO
Output 5.1.1 Project monitoring system is operational and provides systematic information on progress in achieving project outcomes and outputs.		8 semi-annual PPRs	2 semi-annual PPRs	4 semi-annual PPRs	6 semi-annual PPRs	8 semi-annual PPRs	PPR	SAyDS
Output 5.1.2 Mid-term and Final Evaluations		Two (2) evaluation reports		Mid-term Evaluation Report		Final Evaluation Report	Evaluation reports	Independent consultants and FAO evaluation office
Output 5.1.3 Best practices and lessons learnt from the project, disseminated.		Best practices and lessons learnt from project, disseminated	Project webpage and other outreach channels operational	Project webpage and other outreach channels operational	Project webpage and other outreach channels operational	Project webpage and other outreach channels operational	Webpage and publications	SAyDS

APPENDIX 2: WORK PLAN (BASED ON OUTCOMES)

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 1: Strengthening institutional capacities at the national and provincial levels for IAS management.																		
Output 1.1.1 National IAS information system, including updated information on: the presence, distribution, characteristics and impact of IAS; experts within and outside Argentina with experience in the management and/or taxonomy of species of interest; IAS management projects in Argentina.	1-. Develop a national IAS information network.	SAyDS Universidad Nacional del Sur																
	2.- Establish a single registry, validated and updated with information on distribution, status of invasion, impact and management initiatives related to IAS.	SAyDS Universidad Nacional del Sur CONICET APN																
	3 – Generate a data source that can be freely accessed.	SAyDS Universidad Nacional del Sur																
Output 1.1.2 Official list of IAS present in the country defined and organized into categories	1.- Define IAS categories.	Expert consultant in IAS _UGP																
	2.- Regional workshops that will classify IAS into the categories defined above	SAyDS																
Output 1.1.3 National IAS Strategy – guidance document for coordinating communication and education actions, prevention, early detection and rapid response, priority setting, control and eradication.	1.- Design base documents for discussion	UGP – Experts in IAS - SAyDS DFS.																
	2.- Establish the Federal Consultation Mechanism on Invasive Alien Species through CONADIBIO's Technical Sub-committee on IAS.	SAyDS through STEEI-CONADIBIO																
Output 1.1.3.a Prevention strategy to avoid the introduction of IAS in Argentina (Sub-	1.- Create the operational unit responsible for carrying out risk analysis on the introduction of species into the country	SAyDS-UGP I3N Argentina																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
output of the National IAS Strategy)	2.- Identify the main vectors and pathways for IAS to enter the country and spread out internally	SAyDS – UGP –SENASA																
	3.- Train staff responsible for border control	SAyDS-UGP																
	4.- Adopt measures recommended at the international level to manage the ballast water of ships.	UGP-PNA																
	5.- Review mechanisms to grant permits for activities entailing the use of IAS.	UGP-SAyDS																
	6.- Include the issue of IAS in professional and technical curricula related to natural sciences and other similar fields of study.	UGP-SAyDS																
	7.- Train conservation agents	APN																
	8.- Promote voluntary codes of conduct with representatives of professional associations (vets, landscapers) and with the authorities of the Argentine Botanical Gardens Network. And at CIN meeting (National Inter-University Council) with the purpose of conveying the importance of the IAS problem and the severity of its impact.	UGP-SAyDS																
Output 1.1.3.b Systems and protocols for early detection and rapid response systems and protocols developed and implemented, for national and provincial PAs.	1.- Develop a monitoring, detection and rapid response system.	UGP-SAyDS																
	2.- Train park rangers and other conservation agents, at the national and provincial levels	SAyDS APN COFEMA-GoP																
	3.- Determine taxons of dubious identity.	UGP – SAyDS																
Output 1.1.3.c Prioritization, control and eradication systems, developed and implemented for national and provincial Protected Areas (PAs)	1.- Develop prioritization, control and eradication systems for national and provincial PAs.	UGP- SAyDS GoP –APN																
	2.- Train conservation agents., including park-	UGP - SAyDS																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	rangers, trained in IAS prioritization, control and/or eradication techniques linked to actions on ecosystem restoration, composition and resilience.	GoP –APN																
	3.- Implement prioritization, control and eradication systems for national and provincial PAs.	UGP - SAyDS GoP –APN																
Output 1.1.4 Knowledge and perception on IAS and the National IAS Strategy increased upon project completion through the implementation of a public communication and awareness- raising strategy (ECCP – supporting particularly the six pilot programmes, Outputs .2.1-6)	1.- Study "the population's level of knowledge and perception on IAS".	UGP – Communication consultant.																
	2.- Formulate and implement the Public Communication and Awareness-Raising strategy (ECCP) for the National IAS Strategy. Comprises the "Internal Communication Strategy" and the "External Communication Strategy".	UGP-Communication Consultant SAyDS-CUDAP																
	3.- Prepare and distribute printed, audiovisual, electronic material, interactive games, etc.																	
	4.- Build consensus on outlining proposals on IAS-related curricular contents for the different educational levels, at the national and provincial levels.	UGP-Communication consultant SAyDS-																
Component 2: Strengthening regulatory frameworks and financing mechanisms in support of the implementation of the National IAS Strategy																		
Output 2.1.1 IAS regulatory frameworks harmonized between jurisdictions and sectors (agriculture, forestry, fish farming, tourism, health, foreign trade, transport and the environment)	1.- Discuss and reach consensus, and provide technical assistance to harmonize and adjust environmental and sectoral regulations (agriculture, forestry, fish farming, health, foreign trade, transport) based on the IAS national official list, structured into categories (Output 1.1.2) and the protocols and instruments to prevent introduction (Output	UGP – Legal Consultant																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	1.1.3.a)																	
	2.- Train and coach staff of the Judiciary and Public Ministry on IAS-related environmental and sectoral regulations.	UGP –Legal Consultant SAyDS																
Output 2.1.2 Financing mechanisms of the National IAS Strategy developed.	1.- Analyze existing and/or potential financing mechanisms in public and private agencies at the international, national and provincial levels.	UGP – Economic Consultant																
	2.- Outline proposal/s on financial mechanisms for the National IAS Strategy.	UGP – Economic Consultant – SAyDS																
Output 2.1.3 Law on IAS Minimum Standards developed in a participatory manner and proposed to Congress.	1.- Draft the Law on IAS Minimum Standards	UGP – Legal Consultant																
	2.- Coordinate actions to reach consensus and submit proposal to Congress.	UGP –Legal Consultant SAyDS																
Output 2.1.4 Agenda of MERCOSUR ministers of Sub-working Group on the Environment includes the topic of IAS	1.- Include the objectives and scope of the National AIS Strategy in agenda of the Sub-working Group No. 6 on the Environment and MERCOSUR of the SAyDS	UGP – Legal Consultant SAyDS																
	2.- Place the IAS topic on the agenda of the MERCOSUR Ministers of the Environment.	UGP – Legal Consultant SAyDS																
	3.- Formulate documents for distribution.	UGP – Communication Consultant																
Component 3: Validation and implementation of protocols for controlling IAS, prioritized by taxonomic categories and ecosystems, included in the National IAS Strategy																		
Output 3.1.1 Knowledge generation on IAS present at ports and the surrounding areas along the Atlantic Ocean coastline of Argentina completed, and early detection, dispersal prevention and	1.- Prepare updated taxonomic lists of the IAS present in ports along the Argentine Atlantic ports.	UGP – IAS Consultants																
	2.- Formulate and implement a System of early detection and a monitoring and rapid response protocol.	UGP – IAS Consultants																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
rapid response system for managing new invasions underway	3.-Communication and outreach campaign	UGP – Communication Consultant																
Output 3.2.1 Competent authorities and the population at large are informed through a communication strategy on the risks linked to the spread of the **red-bellied tree squirrel** and other species used as pets (in coordination with the awareness-raising strategy of the National IAS Strategy, Output 1.1.4).	1.- Inter-act to train and raise awareness among the competent authorities and the population of the area of influence as regards the negative impact of squirrels.	UGP – IAS Consultants– GoP																
	2.- Develop a communication and awareness-raising strategy	UGP – IAS and Communication Consultant																
	3.- Hold consultation and technical assistance workshops to prepare SAyDS resolutions as well as provincial resolutions (for instance, in Buenos Aires, Córdoba and Santa Fe) declaring the red-bellied tree squirrel a harmful species.	UGP – IAS Consultants																
Output 3.2.2 **Didymo algae** invasion halted in areas of high conservation value in Rio Negro, Neuquen and Chubut.	1.- Identify at least ten areas of high conservation value and low risk of invasion by the didymo alga and establish measures to keep them free from invasion.	UGP – IAS Consultant																
	2.- Train informants that will be part of a Network..	UGP - IAS Consultants																
	3.- Develop and implement GIS combining hydrography, tourist activities and alga distribution.	UGP - IAS Consultants																
	4.- Install cleaning equipment and information signs at strategic sports fishing sites.	UGP - IAS Consultants – GoP																
	5.- Implement a communication strategy to encourage and guide self-cleaning of sports fishing gear.	UGP – IAS Communication IAS Consultant																
	6.- Establish inter-institutional agreements with SENASA, Customs and PSA to include fishing gear among the items to be inspected at airports and other checkpoints.	UGP – IAS Consultants																
Output 3.2.3	1.- Carry out baseline survey on the status and	UGP - IAS																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Control of the **tamarisk** (salt cedar) species and restoration of biodiversity and ecosystem services in two natural protected areas (Ramsar sites at the Guanacache, Desaguadero and Del Bebedero lakes and at the Laguna de Llancanelo lake) of high conservation value in the Cuyo region.	composition of native vegetation and distribution of tamarisks in intervention areas.	Consultants																
	2.- Remove tamarisks from the main forest at Llancanelo lake and Guanacache, Desaguadero and Del Bebedero lakes.	UGP - IAS Consultants – GoP																
	3.- Transplant native plants to areas freed from tamarisks.	UGP - IAS Consultants GoP																
	4.- Monitor the impact of native vegetation recovery and re-invasion control.	UGP - IAS Consultants																
	5.- Communication and dissemination campaign.	UGP – Communication IAS Consultant																
Output 3.2.4 Diversity of amphibians in Argentina's wetlands protected against the invasion of **bullfrog**s, by implementing a national strategy for managing bullfrogs.	1.- Survey active and inactive farms and the occurrence of spontaneous populations in nearby natural environments.	UGP - IAS Consultants SAyDS																
	2.- Propose supplementary regulations to govern bullfrog farming.	UGP - IAS Consultants SAyDS																
	3.- Develop control protocols and validate them in certain areas suffering invasions, through participatory processes.	UGP - IAS Consultants SAyDS																
	4.- Communication strategy																	
Output 3.1.5 Biodiversity in the Paranaense jungle duly protected against the invasion of the **Giant African Snail**, by applying control and eradication measures, together with public health measures linked to IAS.	1.- Study snail density and distribution and the feasibility of control and containment or eradication options.	UGP - IAS Consultants																
	2.- Outline control and eradication protocols and select invasion outbreaks to be eradicated.	UGP - IAS Consultants																
	3.- Communication and awareness-raising campaign.	UGP – Communication IAS Consultant																
	4.- Implement control and eradication protocols in a participatory manner with the local population and repeat study on density and distribution in the outbreak areas under	UGP - IAS Consultants																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	eradication actions to monitor the outcome.																	
	5.- Formulate a full eradication plan for Argentina in a participatory manner.	UGP - IAS Consultants																
Output 3.1.6 Recovery of native forest vegetation species in Northwest Argentina (NOA) and of the livelihood of the Ocloya indigenous community that traditionally uses these resources, by reducing the density and area affected by the invasion of **glossy privet.**	1.- Analyze the invaded area, including the density and distribution baseline, select priority control areas in a participatory fashion, and develop a community programme resorting to adaptation-based management.	UGP - IAS Consultants																
	2.- Implement control actions for glossy privet removal.	UGP - IAS Consultants - GoP																
	3.- Identify native species suitable for assisted vegetation restoration, according to its traditional use and ecological functions, and its reproduction and planning by the community.	UGP – IAS Consultants – GoP																
	4.- Monitor outcomes of control and restoration actions	UGP - IAS Consultants																
	5.- Communication and awareness-raising campaign	UGP – Communication IAS Consultant																
Component 4: Development of the pilot programme for eradication of the American Beavers in Tierra del Fuego province, based on the governance of IAS																		
Output 4.1.1 Governance and management structure for the beaver control and eradication Programme, developed and operational	1.- Create an inter-institutional governance Committee	SDSyA TDF – SAyDS																
	2.- Set up a management team for Component 4	SDSyA TDF																
	3.- Set up the social participation group.	SDSyA TDF with the participation of the General Manger of Beaver Programme																
Output 4.1.2 Operational Plans and Eradication	1.- Carry out baseline studies on the beaver population density at each DU and degree of	General Manager of																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Protocols (POE) for each of the Demonstration Units (DU), under different ownership arrangements and invasion levels: 1) three DUs for eradicating beavers from private property; 2) three DUs for eradication from Protected Areas; and 3) one DU on privately-publicly owned property.	ecosystem degradation.	Beaver Programme CADIC – APN																
	2.- Establish agreements between institutions and with key actors for implementing the Plan.	SDSyA TDF General Manager of Beaver Programme																
	3.- Establish biodiversity recovery indicators (forests, physical structure of watercourse beds, grassland recovery) for monitoring effectiveness of POE application.	General Manager of Beaver Programme																
	4.- Develop detailed protocols for eradicating beavers in different ecosystems and topographic conditions.	General Manager of Beaver Programme																
Output 4.1.3 Capacities reinforced for managing and eradicating beavers, including human resources and instruments for planning and monitoring.	1.- Implement a capacity-building plan (Annex 7.d)	SDSyA TDF General Manager of Beaver Programme																
	2.- Develop a Geographic Information System (GIS) and beaver population density maps in TDF	SDSyA TDF General Manager of Beaver Programme and persons responsible for GIS at participating institutions																
	3.- Prepare brochures and a webpage on the pilot programme for beaver eradication.	Responsible for Communication																
Output 4.1.4	1.- Train trappers, hunters and supervisors.	General																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Trappers, hunters and supervisors have the appropriate skills for the effective application of eradication protocols.		Manager of Beaver Programme																
Output 4.1.5 POE implemented at DUs	1.- Systematically remove colonies	General Manager of Beaver Programme																
	2.- Verify eradication	General Manager of Beaver Programme																
	3.- Bio-security	General Manager of Beaver Programme																
Output 4.1.6 Permanent bio-security systems established (control, monitoring and prevention of re-invasion) including: bio-security plan; systematic monitoring of ecosystem recovery indicators (see Outcome 4.1); and sustainable financing.	1.- Train Bio-Security actors.	General Manager of Beaver Programme																
	2.- Database on actions of the Bio-security Plan for the whole of the Pilot Programme.	SDSyA TDF General Manager of Beaver Programme																
	3.- Permanent control, monitoring and prevention of re-invasion, maintaining the beaver population at a given level to avoid adverse impacts on the native forest and peat bog ecosystems.	SDSyA TDF General Manager of Beaver Programme																
Output 4.1.7 Increased knowledge and understanding of the TDF population	1.- Implement the communication and awareness-raising strategy	General Manager of Beaver																

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
on beaver invasion and the control measures at the end of Project activities by implementing a communication strategy.		Programme, Responsible for Communication																
	2.- Manual including protocols and operating designs for eradication	General Manager of Beaver Programme, Responsible for Communication																
	3.- Develop interpretation and information material (brochures, posters, etc.)	Responsible for Communication																
	4.- Issue publication on the Beaver Pilot Programme, prepare brochures and information for the web, including outcomes of the full Beaver Pilot Programme experience.	Responsible for Communication																
Output 4.2.1 Chile and Argentina exchange experiences and coordinate the learning process on the pilot programme for control and eradication, ensuring lessons learnt are provided as feedback into the National IAS Strategy.	1.- Three bi-national workshops for exchanging experiences and coordinating pilot learning process.	General Manager of Beaver Programme,																
	2.- One national workshop held to provide feedback into the National IAS Strategy	General Manager of Beaver Programme																
	3.- Publication shared with Chilean counterpart at bi-national meetings.	General Manager of Beaver Programme, Person Responsible for Communication																
Output 4.2.2 Governance framework and Bi-national Programme for beaver eradication agreed upon.	1.- Bi-national workshops to reach an agreement on a governance framework and Bi-national Programme	SAyDS- SDSyA TDF																
Component 5: Project monitoring and evaluation and information dissemination																		

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 5.1.1 Project monitoring system operational, providing systematic information on progress achieved in Project outcomes and outputs.	1. Establish a project monitoring system	SAyDS/CTNP, General Manager of Beaver Programme																
	2. Supervise fulfillment of responsibilities on systematic data collection regarding progress in achieving outcome and output indicator goals.	CNP and General Manager of Beaver Programme																
	3. Keep monitoring system updated	SAyDS/CTNP, General Manager of Beaver Programme																
Output 5.1.2 Mid-term and Final Evaluations	1. Provide inputs for Mid-Term Evaluation TORs	SAyDS/CTNP, General Manager of Beaver Programme, and the GPO at FAO Office																
	2. Support the organization of and provide inputs to the mid-term evaluation mission																	
	3. Organize the mid-term evaluation workshop and define and implement adjustments to the Project implementation strategy according to evaluation recommendations.																	
	4. Provide inputs for Final Evaluation TORs																	
	5. Render support to and provide inputs for the final evaluation mission																	
	6. Organize final evaluation workshop and define and implement the strategy in support of project outcomes.																	
Output 5.1.3 Best practices and lessons learnt from the project, duly disseminated	1. Set up the project's webpage	SAyDS/CTNP																
	2. Keep the project's website updated.																	
	3. Prepare and distribute to COFEMA and the STEEI semi-annual summaries on project progress																	

Outputs	Activities	Responsible institution or entity	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	4. Prepare and publish Publication on project's experiences and "best practices"																	
Project management																		
	1. Coordinate the planning of Project Activities and the preparation of the Work Plans and Annual Budget (AWP/B)	SAyDS/CTNP and General Manager of Beaver Programme																
	2. Follow up on project progress in the field and by reviewing technical and consulting reports.																	
	3. Prepare semi-annual Project Progress Reports (PPRs)																	
	4. Provide inputs for the Annual Project Implementation Review (PIR) report																	

APPENDIX 3: BUDGET BY OUTCOMES

Microsoft Office
Excel 97-2003 Worksl

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Salaries professionals														
Operational and finance officer		48	4563.68	0	0	0	0	0	219,057	219,057	54,764	54,764	54,764	54,764
5300 Sub-total salaries professionals				0	0	0	0	0	219,057	219,057	54,764	54,764	54,764	54,764
Salaries general service										0				
										0				
5500 Subtotal Salaries general service				0	0	0	0	0	0	0	0	0	0	0
International Consultants														
2 trainers in prevention of introduction of IAS and early detection and action (Instituto Hórus Brasil)	Week	4	1,500	6,000	0	0	0	0		6,000	6,000			
Technical advisor on beaver management and control	Weeks	2	1,000	0	0	0	2,000	0		2,000	2,000			
Consultant for the elaboration of operation plans for pilots	month	4	2,800	0	0	0	11,200	0		11,200	11,200			
Sub-total international Consultants				6,000	0	0	13,200	0	0	19,200	19,200	0	0	0
National consultants				0										
Project Coordinator	month	48	3,700	29,600	25,900	51,800	16,650	44,400	9,250	177,600	44,400	44,400	44,400	44,400
IAS expert	month	48	2,000	34,000	8,000	42,000	2,000	10,000		96,000	24,000	24,000	24,000	24,000
Assistant	month	48	1,500	12,000	12,000	21,000	6,750	20,250		72,000	18,000	18,000	18,000	18,000
Communication specialist	monht	48	2,000	58,000	0	28,000	4,000	6,000		96,000	24,000	24,000	24,000	24,000
Manager for beaver programme	month	27	2,431	0	0	0	65,637	0		65,637	14,586	29,172	14,586	7,293
3 Operational responsible for Demonstration Unit for beaver control	month	25	2,118	0	0	0	52,950	0		52,950	12,708	25,416	10,590	4,236
3 Responsible for demonstration unit logistics	month	25	1,380	0	0	0	34,500	0		34,500	8,280	16,560	6,900	2,760
Trainer on biosecurity course	month	3	1,353	0	0	0	4,059	0		4,059	2,706	1,353		

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Facilitator workshop	day	2	200				400			400				400
Facilitator workshop	day	8	200				1,600			1,600	400	400	400	400
Technician for the survey using Google Earth images	month	3	1,001	0	0	0	3,003	0		3,003	3,003			
Legal expert, including advice to components 1, 3 y 4	month	30	2,000	0	60,000	0	0	0		60,000	15,000	15,000	15,000	15,000
Specialist in criminal aspects	month	2	2,000	0	4,000	0	0	0		4,000		4,000		
Natural resources economic IAS	month	4	2,000	0	8,000	0	0	0		8,000	8,000			
Coordinator pilot Red-bellied tree squirrel	month	36	1,300	0	0	46,800	0	0		46,800	7,800	15,600	15,600	7,800
Coordinator pilot early detection in ports	month	36	1,300	0	0	46,800	0	0		46,800	7,800	15,600	15,600	7,800
Coordinator pilot didymo algae	month	18	1,300	0	0	23,400				23,400	3,900	7,800	7,800	3,900
Coordinator pilot tamarisks (salt cedars)	month	12	1,300	0	0	15,600				15,600		15,600		
Coordinator pilot bullfrog	month	20	1,300	0	0	26,000				26,000	3,900	15,600	6,500	
Coordinator pilot giant African snail	month	20	1,300	0	0	26,000				26,000	3,900	15,600	6,500	
Coordinator pilot glossy privets	month	36	1,157	0	0	41,652	0	0		41,652	6,942	13,884	13,884	6,942
Informatics specialist	month	11	1,157	12,727	0	0	0	0		12,727	5,785	6,942		
Data entry	month	42	1,157	48,594	0	0	0	0		48,594	6,942	13,884	13,884	13,884
Environmental (IAS) education specialist	month	23	1,804	0	0	41,492	0	0		41,492	21,576	10,788	3,734	5,394
Sub-total national Consultants				194,921	117,900	410,544	191,549	80,650	9,250	1,004,814	243,628	333,599	241,378	186,209
5570 Sub-total consultants				200,921	117,900	410,544	204,749	80,650	9,250	1,024,014	262,828	333,599	241,378	186,209
Contracts														
Midterm evaluation	Lump sum	1	40,000	0	0	0	0	40,000		40,000		40,000		
Final evaluation	Lump sum	1	40,000	0	0	0	0	40,000		40,000				40,000
Rental helicopter to validate diagnostic imaging UD eradication	hour	20	1,500	0	0	0	30,000	0		30,000	30,000			
Rental helicopter to support restoration and recovery verification	hour	80	1,500	0	0	0	120,000	0		120,000		37,200	37,200	45,600
Fees for restoration and biosecurity operators	Man month	152	2,000	0	0	0	304,000	0		304,000	70,224	140,144	76,912	16,720
Genetic analysis	sample	600	26	0	0	0	15,600	0		15,600		7,800	3,900	3,900
Analysis in N samples	study	40	60	0	0	0	2,400	0		2,400			1,200	1,200
Analysis of soil compaction in reservoirs	study	2	1,000	0	0	0	2,000	0		2,000			1,000	1,000

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Analysis of fund structure waterways	study	2	2,000	0	0	0	4,000	0		4,000			2,000	2,000
Analysis of forest regeneration in non flooded forest impacted	study	3	4,000	0	0	0	12,000	0		12,000		4,000	4,000	4,000
Analysis installation implanted reservoirs drained forest	study	2	3,600	0	0	0	7,200	0		7,200			3,600	3,600
Analysis eradication verification and determination of criteria for declaring eradication	study	1	3,000	0	0	0	3,000	0		3,000				3,000
Personnel hired for controlling invasive plants	Lump sum	1	26,500	0	0	26,500	0	0		26,500	4,417	8,833	8,833	4,417
Quitrid fungus analysis	Lump sum	1	1,600	0	0	1,600	0	0		1,600		800	800	
Taxonomic diagnostic	Lump sum	1	12,400	0	0	12,400	0	0		12,400	2,067	4,133	4,133	2,067
Development of SIG	Lump sum	1	3,550	0	0	3,550	0	0		3,550		3,550		
Survey on social perception of IAS	study	2	120,000	240,000	0	0	0	0		240,000	120,000			120,000
Design award of logo	unit	1	300	300	0	0	0	0		300	300			
Radio production (without issue)	production	1	2,000	2,000	0	0	0	0		2,000	1,000		1,000	
TV productions(spots + documentaries) (without the transmission)	production	3	40,000	120,000	0	0	0	0		120,000	30,000	30,000	30,000	30,000
Firmware animated "Invasive Species" (Presentation + Production + Issue)	microprogramme	10	3,000	30,000	0	0	0	0		30,000	30,000			
Publication and dissemination of beaver pilot programme	Publication	10	9,638	19,276	0	0	77,104	0		96,380		32,127	32,127	32,127
Publication and dissemination of beaver pilot programme development, design and printing	Publication	1	8,000	0	0	0	8,000	0		8,000		4,000		4,000
Publication on IAS and National IAS Strategy under the MERCOSUR framework: development, design and printing	Publication	1	8,000	8,000	0	0	0	0		8,000		8,000		
Edition and printing of National IAS Strategy	Lump sum	1	20,000	20,000	0	0	0	0		20,000	20,000			
Stand National IAS Strategy Tecnópolis	Lump sum	1	30,000	30,000	0	0	0	0		30,000		10,000	10,000	10,000
5650 Sub-total Contracts				469,576	0	44,050	585,304	0	0	1,098,930	308,007	290,587	216,705	283,630
Travel														
DSA for transfers	days	10	70	0	0	0	700	0		700	700			
Air transfers Ushuaia - Buenos Aires I/V	Ticket	3	431	0	0	0	1,293	0		1,293	1,293			

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
DSA for participants for validation of indicators	days	5	70	0	0	0	350	0		350	350			
Helicopter trips for re-invasion monitoring	Ticket	16	1,525	0	0	0	24,400	0		24,400		8,133	8,133	8,133
Terrestrial transfers for groups: restoration and verification	Lts gas	4400	1.2	0	0	0	5,280	0		5,280	840	1,800	1,800	840
Field workers food	day/person	3850	20	0	0	0	77,000	0		77,000		43,890	26,950	6,160
Local transport regeneration and recuperation survey	litres	4500	1.2	0	0	0	5,400	0		5,400		600	2,400	2,400
Local transport surveys waterways regeneration and recovery	litres	3500	1.2	0	0	0	4,200	0		4,200		467	1,867	1,867
Flight tickets / course on IAS	flight	2	431	0	0	0	862	0		862	862			
Flight tickets initial assistance workshop component 4	flight	3	431	0	0	0	1,293	0		1,293	1,293			
Transfer Ushuaia- Punta Arenas training in Chile	Ticket	10	160				1,600			1,600	1,600			
International Flights course on techniques for APHIS personnel (USA-Ushuaia)	Ticket	6	2,600	0	0	0	15,600	0		15,600	15,600			
Flight ticket for training in Chile	litres	400	1.20	0	0	0	480	0		480	480			
Beaver programme manager Training Program in beaver control. Air ticket Buenos Aires-Auckland	Ticket	1	3,000	0	0	0	3,000	0		3,000	3,000			
DSA Manager beaver programme manager	days	15	160	0	0	0	2,400	0		2,400	2,400			
Daily allowance technical course for six persons 30 days	days	180	200	0	0	0	36,000	0		36,000	36,000			
Air travel training in Argentina	litres	700	1	0	0	0	840	0		840	840			
Air travel Ushuaia-Buenos Aires to contribute to development Biosecurity Plan	Ticket	4	431	0	0	0	1,724	0		1,724	862	862		
Daily allowance Buenos Aires	day	15	70	0	0	0	1,050	0		1,050	525	525		
Field workers food	day/person	1200	20	0	0	0	24,000	0		24,000	1,500	7,500	7,500	7,500
Local transport for biosecurity activities	litres	9500	1.2	0	0	0	11,400	0		11,400	368	3,677	3,677	3,677
Transfers Buenos Aires Ushuaia for national governmental officers	Ticket	3	720	0	0	0	2,160	0		2,160				2,160
Daily allowance governmental officers	days	15	120	0	0	0	1,800	0		1,800				1,800

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Air travel Buenos Aires Ushuaia for national government officers	Ticket	9	720	0	0	0	6,480	0		6,480		2,160	2,160	2,160
Daily allowance governmental officers	days	45	120	0	0	0	5,400	0		5,400		1,800	1,800	1,800
Air travel consultant Ushuaia- Buenos Aires	Ticket	1	431	0	0	0	431	0		431				431
Air travel consultant Ushuaia- Punta Arenas	Ticket	1	160	0	0	0	160	0		160				160
DSA consultant Ushuaia- Buenos Aires	days	7	70	0	0	0	490	0		490				490
DSA consutant Ushuaia- Punta Arenas	days	7	120	0	0	0	840	0		840				840
Participation in workshops, meeting, training, pilots, etc under the project framework	Ticket	171	431	31,032	17,240	25,429	0	0		73,701	18,425	18,425	18,425	18,425
Participation in workshops, meeting, training, pilots, etc under the project framework	DSA	441	70	10,080	8,400	12,390	0	0		30,870	7,718	7,718	7,718	7,718
Field survey on the distribution of the Bullfrog	DSA	750	69	0	0	51,750	0	0		51,750	8,625	17,250	17,250	8,625
Daily allowances privets control	DSA	120	70	0	0	8,400	0	0		8,400	1,400	2,800	2,800	1,400
Ticket monitoring and project coordination	Ticket	40	431	0	0	0	0	17,240		17,240	4,310	4,310	4,310	4,310
Daily allowance monitoring and project coordination	days	160	70	0	0	0	0	11,200		11,200	2,800	2,800	2,800	2,800
Tickets for communicators	Ticket	56	431	12,068	0	12,068	0	0		24,136	6,034	6,034	6,034	6,034
Daily allowance for communicators	days	168	70	5,880	0	5,880	0	0		11,760	2,940	2,940	2,940	2,940
5900 Sub-total travel				59,060	25,640	115,917	236,633	28,440	0	465,690	120,764	133,691	118,564	92,670
Training and workshops														
Workshop for pilot areas	workshop	1	200	0	0	0	200	0		200	200			
Workshop for identification of indicators	workshop	1	200	0	0	0	200	0		200	200			
Training on invasive species issues	training	1	2,200	0	0	0	2,200	0		2,200	2,200			
Training first aid	training	1	2,200	0	0	0	2,200	0		2,200	2,200			
Communication course	training	1	2,200	0	0	0	2,200	0		2,200	2,200			
Biosecurity course	training	2	2,200	0	0	0	4,400	0		4,400	2,200	2,200		
Workshops on operation and implementation system for the beaver pilot programme (114 participants)	workshop	6	2,200	0	0	0	13,200	0		13,200	2,200	4,400	4,400	2,200
Launching workshop component 4		1	1,000	0	0	0	1,000	0		1,000	1,000			

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Food for participants for hunting training (80 persons, 21 days)	day/person	1680	20	0	0	0	33,600	0		33,600	33,600			
Training technical staff in Chile (ten persons, ten days) including transfer, food and housing in Chile	Curse	1	12,000				12,000			12,000	12,000			
Workshop for the elaboration of the biosecurity plan	workshop	3	500	0	0	0	1,500	0		1,500		1,000	500	
Capacity building for searching dogs	training	2	6,000	0	0	0	12,000	0		12,000			6,000	6,000
Binational plan workshop 50 people two days	workshop	1	1,200	0	0	0	1,200	0		1,200				1,200
Sharing experiences workshop for 50 persons, two days, including Chilean in year 2 and 4	workshop	3	1,200	0	0	0	3,600	0		3,600		1,200	1,200	1,200
Sharing experiences workshop for 50 persons, two days, including Chilean in year 2 and 4	workshop	3	1,200				3,600	0		3,600		1,200	1,200	1,200
Initial project workshop	workshop	1	3,000					3,000		3,000	3,000			
Midterm and final evaluation workshops	workshop	2	1,750					3,500		3,500		1,750		1,750
Training Judiciary and Public Prosecution	training	3	800	0	2,400	0	0	0		2,400		1,200	1,200	
Minimum Budget Law Workshops	workshop	7	900	0	6,300	0	0	0		6,300	2,700	3,600		
Financial National IAS Strategy workshops	workshop	3	1,000	0	3,000	0	0	0		3,000	1,000	2,000		
Workshop MERCOSUR	workshop	1	400	0	400	0	0	0		400			400	
Legal meetings IAS CONADIBIO	meeting	4	255	0	1,020	0	0	0		1,020	255	255	255	255
Legal meeting with the working group of national CONADIBIO	meeting	12	196	0	2,353	0	0	0		2,353	588	588	588	588
Training in the national IAS information system	training	6	2,941	17,646	0	0	0	0		17,646	4,412	8,823	4,412	
Workshops on vectors and pathways	workshop	2	9,804	19,608	0	0	0	0		19,608		9,804	9,804	
Initial and final workshops for the development of the National IAS Strategy	workshop	2	9,804	19,608	0	0	0	0		19,608	9,804			9,804
Training courses, prevention	course	5	3,373	16,865	0	0	0	0		16,865		6,746	10,119	
Training course for trainers in IAS control	course	1	9,804	9,804	0	0	0	0		9,804		9,804		
Training course on IAS control techniques	course	5	2,941	14,705	0	0	0	0		14,705		5,882	8,823	
Specialist workshop for port control and early warning system	workshop	3	5,621		0	16,863				16,863		5,621	5,621	5,621

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Local workshops and perception surveys in relation to preventing pets turning into IAS	workshop	3	980	0	0	2,940	0	0		2,940	490	980	980	490
Training for tamarisks (salt cedar) control and ecosystem restoration	training	5	1,098	0	0	5,490	0	0		5,490	1,830	3,660		
Workshops on bullfrog control strategy	workshop	2	7,353	0	0	14,706	0	0		14,706	4,902	9,804		
Workshop on eradication feasibility of the Giant African Snail	workshop	1	9,804	0	0	9,804	0	0		9,804	3,268	6,536		
Giant African Snail control and education campaign	campaign	9	4,706	0	0	42,354	0	0		42,354	7,059	14,118	14,118	7,059
Training workshops on privet control and forest restoration	training	5	3,529	0	0	17,645	0	0		17,645	2,941	5,882	5,882	2,941
Workshop on the communication strategy for the National IAS strategy	workshop	1	2,100	2,100	0	0	0	0		2,100	2,100			
5023 Sub-total training				100,336	15,473	109,802	93,100	6,500	0	325,211	102,348	107,053	75,501	40,308
Expendable procurement														
Printing material of operation manuals for extraction tasks	Manual	110	10	0	0	0	1,100	0		1,100			500	500
Papers for complain systems	unit	11	400	0	0	0	4,400	0		4,400		2,000	1,200	1,200
Printing of operation manuals on biosecurity	unit	150	10	0	0	0	1,500	0		1,500		500	500	500
Booklets for complains systems	unit	800	2	0	0	0	1,600	0		1,600	400	600	400	200
Posters	unit	180	40	0	0	0	7,200	0		7,200	1,200	2,000	2,000	2,000
Legal publications	unit	10,000	3	0	30,000	0	0	0		30,000			10,000	20,000
Anchoring system for traps	unit	136	2	0	0	0	272	0		272	272			
Cable 9 gauges (66 mm	roll	12	17	0	0	0	204	0		204	204			
3/32 cable 1000’	roll	12	48	0	0	0	576	0		576	576			
1/8 cable 1000’	roll	12	68	0	0	0	816	0		816	816			
Pliers	unit	22	70	0	0	0	1,540	0		1,540	1,540			
Vice (morsa locally)	unit	6	175	0	0	0	1,050	0		1,050	1,050			
Pliers to cut wire	unit	23	25	0	0	0	575	0		575	575			
Component	unit	4	400	0	0	0	1,600	0		1,600	1,600			
Soporte 60”H	unit	64	7	0	0	0	448	0		448	448			
Soporte 48”H	unit	64	6	0	0	0	384	0		384	384			

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Soporte 18" H	unit	64	3	0	0	0	192	0		192	192			
Rerod p/anclaje 20"	unit	62	2	0	0	0	124	0		124	124			
Anti-rust paint	litres	65	7	0	0	0	455	0		455	455			
Plastic boxes	unit	45	8	0	0	0	360	0		360	360			
Labels for tramps	box per 100	27	6	0	0	0	162	0		162	162			
Spade	unit	24	20	0	0	0	480	0		480	480			
Gloves	pair	67	35	0	0	0	2,345	0		2,345	2,345			
Wader up to the breast	pair	27	70	0	0	0	1,890	0		1,890	1,890			
Wader up to the knee	pair	27	55	0	0	0	1,485	0		1,485	1,485			
Swivel device	dozen	28	6	0	0	0	168	0		168	168			
Pliers	unit	28	12	0	0	0	336	0		336	336			
Baits	per 4 litres	22	60	0	0	0	1,320	0		1,320	1,320			
Mineral oil	per 4 litres	11	30	0	0	0	330	0		330	330			
Latex gloves	box per 100	23	11	0	0	0	253	0		253	253			
Knifes	unit	27	12	0	0	0	324	0		324	324			
Collector	unit	22	150	0	0	0	3,300	0		3,300	3,300			
Batteries	unit	28	40	0	0	0	1,000	0		1,000	1,000			
High mountain tents	unit	15	1,000	0	0	0	15,000	0		15,000	15,000			
Sleeping bags high mountain	unit	50	600	0	0	0	30,000	0		30,000	30,000			
Mats	unit	50	140	0	0	0	7,000	0		7,000	7,000			
Camping stoves	unit	20	100	0	0	0	2,000	0		2,000	2,000			
Kitchen set for camp	unit	20	140	0	0	0	2,800	0		2,800	2,800			
Waterproof clothing for fieldwork (Jacket and pants	unit	50	600	0	0	0	30,000	0		30,000	30,000			
Shoes	pair	50	180	0	0	0	9,000	0		9,000	9,000			
Coats	unit	50	180	0	0	0	9,000	0		9,000	9,000			
Rechargeable batteries for computers	unit	300	5	0	0	0	1,500	0		1,500	1,000	250	250	
Battery charges	unit	30	26	0	0	0	780	0		780	650	130		
Stationary (1)	estimated	60	40	0	0	0	2,400	0		2,400	600	600	600	600
Material Logistics camp (sealed boxes	unit	30	200	0	0	0	6,000	0		6,000	3,000	3,000		

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Batteries for GPS	unit	1,400	2	0	0	0	2,800	0		2,800	1,000	1,000	400	400
Medical kit for logistic responsible	unit	2	40	0	0	0	80	0		80	40	40		
Medical kit for field workers	unit	35	20	0	0	0	700	0		700	400	200	100	
Stationary (2)	estimated	4	400	0	0	0	1,600	0		1,600	400	400	400	400
Communication resources	Service	1	9,020	0	0	9,020	0	0		9,020	1,503	3,007	3,007	1,503
Materials for sampling and specimen collection	kit	3	5,412	0	0	16,236	0	0		16,236	2,706	5,412	5,412	2,706
Leaflets and other communication resources	Various	Various	6,275	0	0	6,275	0	0		6,275	2,092	4,183		
Materials for controlling invasive plants	Various	Various	99,510	0	0	99,510	0	0		99,510	16,585	33,170	33,170	16,585
Fuel	km	35,000	0.16	0	0	5,600	0	0		5,600	933	1,867	1,867	933
Communication resources	Service	1	8,235	0	0	8,235	0	0		8,235	2,745	5,490		
Printing (booklet, posters, banners, material comp 1, 3, 4 etc.)	unit	1	180,000	160,800	0	19,200	0	0		180,000	48,600	45,000	54,000	32,400
Office material	unit	1	8,000	762	0	0	0	8,000		8,762	2,190	2,190	2,190	2,190
6000 Sub-total expendable procurement				161,562	0	164,076	142,649	8,000	0	476,287	211,234	105,939	101,396	57,718
Non-expendable procurement														
Belisle 330X (completo)	dozen	15	285	0	0	0	4,275	0		4,275	4,275			
Equipment for safe installation	unit	24	40	0	0	0	960	0		960	960			
Secutiry disposal	unit	59	8	0	0	0	472	0		472	472			
Trap complete loop	dozen	208	24	0	0	0	4,992	0		4,992	4,992			
Grinding wheel	unit	3	40	0	0	0	120	0		120	120			
GPS etrek Garmin type	unit	20	500	0	0	0	10,000	0		10,000	10,000			
Tablet 7"	unit	20	500	0	0	0	10,000	0		10,000	10,000			
Multiuse tools Leatherman type	unit	20	240	0	0	0	4,800	0		4,800	4,800			
Radios VHF	unit	20	240	0	0	0	4,800	0		4,800	4,800			
GPS type I-GotU	unit	25	80	0	0	0	2,000	0		2,000	2,000			
Four-wheel	unit	2	14,000	0	0	0	28,000	0		28,000	28,000			
Printing	unit	2	140	0	0	0	280	0		280	280			
Projector	unit	1	1,200	0	0	0	1,200	0		1,200	1,200			
Notebook trainers	unit	1	1,000	0	0	0	1,000	0		1,000	1,000			
PC Desktop type with data management capabilities Georeferenced	unit	1	1,200	0	0	0	1,200	0		1,200	1,200			
Notebook for Manager	unit	1	1,000	0	0	0	1,000	0		1,000	1,000			

Oracle code and description	Unit	No. of units	Unit cost	Comp. 1 Total	Comp. 2 Total	Comp.3 Total	Comp. 4 Total	Comp.5 Total	PM	GEF	Year 1	Year 2	Year 3	Year 4
Computers for operation management offices	unit	1	800	0	0	0	800	0		800	800			
Camera for pictures	quantity	1	240	0	0	0	240	0		240	240			
Digital Photo Cameras Canon 10 Mp type	unit	16	200	0	0	0	3,200	0		3,200	1,600	1,600		
Cycler	unit	1	12,000	0	0	0	12,000	0		12,000		12,000		
Control equipment for training courses	kit	5	1,471	7,355	0	0	0	0		7,355	7,355			
Sampling equipment	kit	3	1,176	0	0	3,528	0	0		3,528	2,352	1,176		
Self cleaning stations for fishing gear	stations	100	490	0	0	49,000	0	0		49,000	16,333	32,667		
Notebooks	notebook	2	1,569	0	0	3,138	0	0		3,138	3,138			
GPS	GPS	2	235	0	0	470	0	0		470	470			
Equipment for controlling trees	kit	14	1,050	0	0	14,700	0	0		14,700	9,800	4,900		
Sampling kit	sampling kit	6	1,514	0	0	9,084	0	0		9,084	9,084			
Equipment for controlling trees	kit	4	1,078	0	0	4,312	0	0		4,312	4,312			
Saplings cultivated by the local community	sapling	2500	7	0	0	17,500	0	0		17,500		5,833	11,667	
Notebooks	notebook	2	1,570	3,140	0	0	0	0		3,140	3,140			
Notebooks y accessories communications	notebook	1	1,570	1,570	0	0	0	0		1,570	1,570			
Projector	unit	1	1,500	1,500	0	0	0	0		1,500	1,500			
Communication equipments	unit	1	500	500	0	0	0	0		500	500			
6100 Sub-total non-expendable procurement				14,065	0	101,732	91,339	0	0	207,136	137,293	58,176	11,667	0
6300 GOE budget														
Miscellaneous	Lump sum	1	53,676	7,000	4,000	14,000	18,000	10,676		53,676	13,419	13,419	13,419	13,419
6300 Sub-total GOE budget				7,000	4,000	14,000	18,000	10,676	0	53,676	13,419	13,419	13,419	13,419
TOTAL				1,012,520	163,013	960,121	1,371,774	134,266	228,307	3,870,000	1,210,658	1,097,229	833,395	728,718

SUBTOTAL Comp 1	**1,012,520**	26.2%
SUBTOTAL Comp 2	**163,013**	4.2%
SUBTOTAL Comp 3	**960,121**	24.8%
SUBTOTAL Comp 4	**1,371,774**	35.4%
SUBTOTAL Comp 5	**134,266**	3.5%
SUBTOTAL Project Management	**228,307**	5.9%
TOTAL GEF	**3,870,000**	100.0%

APPENDIX 4: RISK MANAGEMENT MATRIX

Description of Risk	Category[83]	Impact[84]	Probability[85]	Palliative Action	Responsible for follow-up	Status[86]

[83] Risk categories of the FAO ERM Strategy: Clearly planned objective (impact and outcome); Efficient strategy for outcome achievement; Support from external actors; Support from internal actors; Allocated resources; Viable structures for outcome achievement; Strong management for outcome achievement.

[84] H: high; M: Medium; L: low.

[85] H: high; M: Medium; L: low.

[86] To update implementation and follow-up (no change, reduced, increased)

APPENDIX 5: PROCUREMENT PLAN

Reference	Element Description	Unit	Estimated Amount	Estimated Cost	Unit Price	Request Method[87]	Purchase Method[88]	Purchaser[89]	Foreseen date launch call for bids	Foreseen contract date	Foreseen delivery date	Final Destination and Delivery terms	Status[90]	Other limitations or considerations

[87] Request for Estimate, Request for Proposals, Invitation to Bid.
[88] Direct purchase, reuse of bid results, United Nations framework, etc
[89] CSAP, outside headquarters, procurement mission
[90] This column will be updated during the implementation and follow-up stages.

APPENDIX 6: TERMS OF REFERENCE

TdR.zip

1. Assistant in agrarian economy (Component ¿)

2. IAS Assistant (Component ¿)

3. Biologist specializing in IAS, and coordinator (project management)

4. Expert in bio-security (Component ¿)

5. Trainers in ecology and management of IAS (Component ¿)

6. Technician for data entry (Component 1)

7. Expert in communication and outreach (Component 1)

8. Coordinator of the glossy privet pilot programme (Component 3)

9. Coordinator pilot programme on red-bellied tree squirrel (Component 3)

10. Coordinator pilot system for early detection at ports (Component 3)

11. Natural resource economist (Component ¿)

12. Environmental education (Component ¿)

13. Legal expert (Component 2)

14. IT expert (Component ¿)

15. Expert in field logistics (Component 4)

16. Expert in beaver eradication (Component 4, operational plan)

17. Expert in specific criminal matters and penalties (Component ¿)

18. Expert in governance (Component 4)

19. Head of Operations (Component 4)

20. Restorers and bio-security operators (Component 4)

APPENDIX 7: TECHNICAL AND OPERATIONAL ANNEXES FOR BEAVER ERADICATION PILOT PROGRAMME

The below aappendixes may be found in this link:

ftp://ext-ftp.fao.org/TC/Data/TCI/Gef/Argentina%20NSIAS/

Annex 7.a: Process for selecting Demonstration Units
Annex 7.b: Governance of the pilot programme on beaver eradication
Annex 7.c: Operational Plan for DU Arroyo Gamma
Operational Plan for DU Asturiana
Operational Plan for DU Olivia and Tierra Mayor
Operational Plan for DU Rio Melangüena
Operational Plan for DU Rio Mimica Inn and Indio
Operational Plan for DU Valdez Sub-basin
Operational Plan for DU South of Tierra del Fuego National Park
Annex 7.d: Capacity-building for beaver eradication
Annex 7.e: Bio-security
Annex 7.f: Density of active colonies
Annex 7.g: Ecosystem Recovery Index
Annex 7.h: Methods used for beaver control