Overseas Countries and Territories: Environmental Profiles

FINAL REPORT

PART 2 – DETAILED REPORT

SECTION E – SOUTH ATLANTIC REGION

SAFEGE

Consortium

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Abbreviations and acronyms

ACAP	Agreement on the Conservation of Albatrosses and Petrels
ACOR	Association Française pour les Récifs Coralliens
ACP	Africa Caribbean and the Pacific
ACS	Association of Caribbean States
AEPS	Arctic Environmental Protection Strategy
AFD	French Development Agency
AMAP	Arctic Monitoring and Assessment Programme
AMOC	Atlantic Meridional Overturning Circulation
AOSIS	Alliance of Small Island States
APEC	Asia–Pacific Economic Cooperation
BAS	British Antarctic Survey
BEST	EU Voluntary Scheme for Biodiversity and Ecosystem Services in Territories of European Overseas
BRGM	Bureau de Recherches Géologiques et Minières
CAFF	Conservation of Arctic Flora and Fauna
CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community
CARIFORUM	Caribbean Forum
CBD	Convention on Biological Diversity
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CCAS	Convention on Conservation of Antarctic Seals
CCC	Cod and Climate Change Programme
CCCCC	Caribbean Community Climate Change Centre
CDB	Caribbean Development Bank
CDEMA	Caribbean Disaster Emergency Management Agency
CDS	Catch Documentation Scheme
CEHI	Caribbean Environmental Health Institute
CIDA	Canadian International Development Agency
CITES	Convention on International Trade in Endangered Species
CMS	Bonn Convention on Migratory Species
CNRS	Centre National pour la Recherche Scientifique
COLTO	Coalition of Legal Toothfish Operators
COMESA	Common market for Eastern and Southern Africa
CoP	Conference of the Parties
CPA	Country Poverty Assessment
CPACC	Caribbean Planning for Adaptation to Climate Change
CR	Critically endangered (IUCN classification)
CRAMRA	Convention on the Regulation of Antarctic Mineral Resource Activities
CRISP	Coral Reefs in the South Pacific
CROP	Council of Regional Organizations of the Pacific
CSD	Commission on Sustainable Development
CSME	Caribbean Single Market and Economy
Darwin Plus	Fuses OTEP and Darwin (OCT component) in what concerns competitive funding to deliver long-term strategic outcomes for the natural environment in the UK's Overseas Territories
DCNA	Dutch Caribbean Nature Alliance
DEFRA	Department for Environment, Food and Rural Affairs of UK government
DFID	DEPARTMENT FOR INTERNATIONAL DEVELOPMENT of UK government
DK	Denmark

DPSIR	Driver, Pressure, State, Impact and Responses
ECCB	Eastern Caribbean Central Bank
EDF	European Development Fund
EE	Energy efficiency
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EN	Endangered (IUCN classification)
ENSO	El Niño Southern Oscillation
EPA	Economic Partnership Agreement
EPD	Environment, planning and development
EPPR	Emergency Prevention, Preparedness and Response
EU	European Union
FAO	Food and Agriculture Organisation
FCO	Foreign & Commonwealth Office UK Government
FEA	Fonds pour l'Environnement et l'Agriculture
FR	France
GCRMN	Global Coral Reef Monitoring Network
GDP	Gross Domestic Product
GEF	Global Environment Facility
GGF	Good Governance Fund
GHG	Greenhouse Gas
GIWA	Global International Water Assessment
GLIPSA	Global Islands Partnership
HMS	His Majesty's Ship
I&M	Dutch Ministry of Infrastructure and Environment
IAATO	International Association of Antarctica Tour Operators
IAC	Inter-American Convention for the Protection and Conservation of Sea Turtles
IBA	Important Bird Area
IBRD	International Bank for Reconstruction and Development
ICCAT	International Commission for the conservation of tuna-like fish in the Atlantic
ICES	International Council for the Exploration of the Sea
ICES-CCC	ICES Cod and Climate Change Programme
ICRI	International Coral Reef Initiative
IDB	Inter-American Development Bank
IFRECOR	Initiative Française pour les Récifs Coralliens
IIED	International Institute for Environment and Development (UK)
IMF	International Monetary Fund
INTEGRE	Initiative des Territoires du Pacifique pour la gestion régionale de l'environnement
IOC	Indian Ocean Commission
IPCC	International Panel on Climate Change
IRD	Institut de Recherche pour le Développement (FR)
IUCN	International Union for Conservation of Nature
IUU	Illegal unregulated and unreported fishing
JCNB	Joint Commission on Narwhal and Beluga
JNCC	Joint Nature Conservation Committee UK Government
LPO	Ligue pour la Protection des Oiseaux
LSB	Landbased Sources of Marine Pollution (protocol of the Cartagena Convention)
MAB	Man and Biosphere (Reserve)
MACC	Mainstreaming Adaptation to Climate Change
MDGs	Millennium Development Goals
MEA	Multilateral Environmental Agreement
MoU	Memorandum of Understanding

MPA	Marine Protected Area
MSC	Marine Stewardship Council
MSP	Marine Spatial Planning
n.a.	not available
NAFO	North Atlantic Fisheries Organisation
NAMMCO	North Atlantic Marine Mammal Commission
NBSAP	National Biodiversity Strategy and Action Plan
NEMS	National Environmental Management Strategy
NGO	Non-governmental organization
NL	Netherlands
NNR	National Nature Reserve
NT	National Trust
NZ	New Zealand
OAD	Overseas Association Decision
OAU	Organisation of African Unity
OCTA	Overseas Countries and Territories Association
OCTs	Overseas Countries and Territories
OECD	Organisation for Economic Co-operation and Development
OECS	Organisation of Eastern Caribbean States
OT	Overseas Territories (commonly used in texts from the UK)
OTCF	UK Overseas Territories Conservation Forum
OTEP	Overseas Territories Environment Programme (replaced by Darwin Plus)
PAME	Protection of the Arctic Marine Environment
PCCFAF	Pacific Climate Change Finance Assessment Framework
PECCO	Pacific Environment and Climate Change Outlook
PEP	Poverty and Environment Partnership
PGA	Plan Général d'Aménagement
PGEM	Plan de Gestion de l'Espace Maritime
PID	Pacific Islands Development Programme
PILN	Pacific Invasives Learning Network
PIP	Pacific Invasives Partnership
PNG	Papua New Guinea
POP	Persistent Organic Pollutant
PPCR	Pilot Program for Climate Resilience
PROE	Programme régional océanien de l'environnement
PWSD	Public Works and Services Department
RE	Renewable Energy
RFMO	Regional Fisheries Management Organisation
RIP	Regional Indicative Programme
RSP	Regional Seas Programme or Regional Strategy Paper
RSPB	Royal Society for the Protection of Birds
SADC	Southern Africa Development Community
SAERI	South Atlantic Environmental Research Institute
SAWG	South Atlantic Working Group (of the UK OTCF)
SCOR	Scientific Committee on Oceanic Research
SCP	Strategic Country Programme
SD	Sustainable Development
SDP	Sustainable Development Plan
SEA	Strategic Environmental Assessment
SEAFO	South-East Atlantic Fisheries Organisation
SIDS	Small Island Developing States
SIDSnet	Small Island Developing States Information Network
SME	Small and Medium Enterprises

SOPAC	South Pacific Applied Geoscience Commission
SORP	Southern Ocean Research Partnership
SPA	Specially Protected Area
SPAW	Protocol concerning Specially Protected Areas and Wildlife
SPC	Secretariat of Pacific Community
SPD	Single Programming Document
SPREP	South Pacific Regional Environment Programme
SPT	South Pacific Tourism Organisation
STZC	Sustainable Tourism Zone of the Caribbean
TAC	Total Allowable Catch
TAO	Territorial Authorising Officers
TEP	Tonne Equivalent Pétrole (TEP Vertes is a climate change mitigation programme in the Pacific)
UK	United Kingdom
UKAHT	United Kingdom Antarctic Heritage Trust
UKOTA	Association of OCT linked to the UK
UKOTCF	United Kingdom Overseas Territories Conservation Forum
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Social and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
VMS	Vessel Monitoring System
VROM	Netherlands environment ministry
VU	Vulnerable (IUCN classification)
WH	World Heritage
WIDECAST	Wider Caribbean Sea Turtle Conservation Network
WRI	World Resources Institute
WTO	World Trade Organisation
WWTP	Wastewater Treatment Plant

AI	Ascension Island
ANG	Anguilla
ARU	Aruba
BAT	British Antarctic Territory
BIOT	British Indian Ocean Territory
BLM	Saint Barthelemy
BM	Bermuda
BON	Bonaire
BVI	British Virgin Islands
CAY	Cayman Island
CUW	Curaçao
FLK	Falkland Islands
FP	French Polynesia
GL	Greenland
MSR	Montserrat
NC	New Caledonia
PIT	Pitcairn
SAB	Saba
SGSSI	South Georgia and South Sandwich islands
SH	Saint Helena
SHATdC	St Helena, Ascension and Tristan da Cunha
SPM	St Pierre and Miquelon
StEus	Sint Eustatius
SXM	Sint Maarten
TAAF	French Southern and Antarctic Territories
TCI	Turks and Caicos islands
TdC	Tristan da Cunha
W&F	Wallis and Futuna

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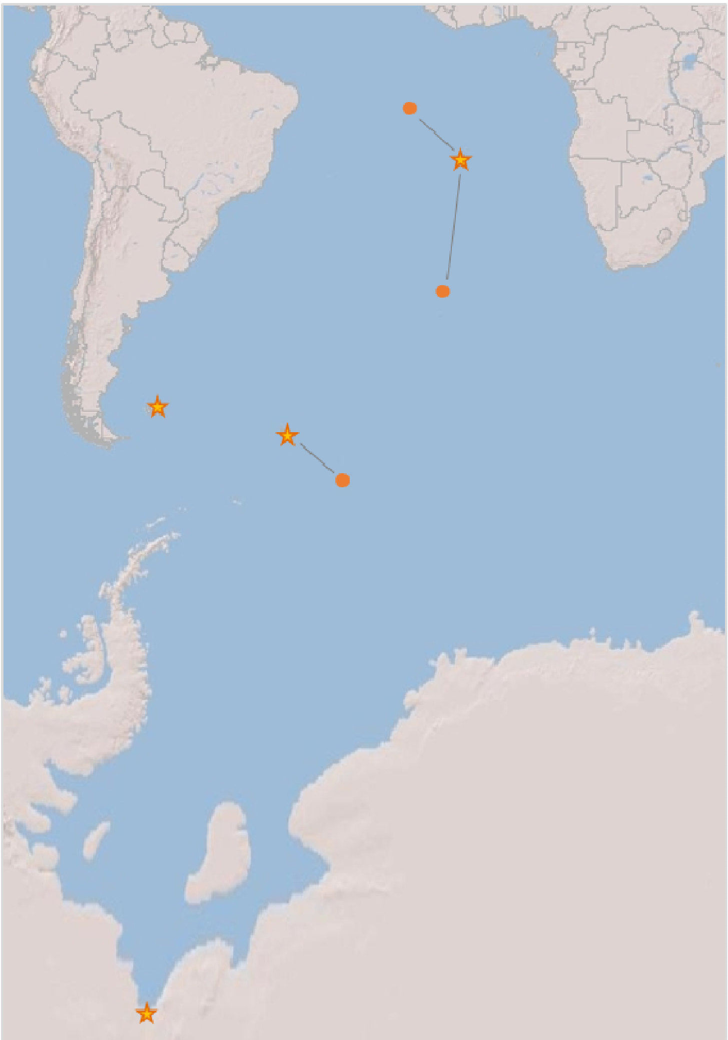
REGIONAL ENVIRONMENTAL PROFILE

SOUTH ATLANTIC



1 INTRODUCTION

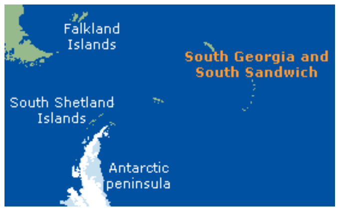
This volume is part of a 6-volume report made at the request of the European Commission. It presents environmental profiles for the four overseas countries and territories (OCTs)[1] in the South Atlantic region. There are companion volumes for the OCTs in the Pacific, Caribbean, North Atlantic and Indian Ocean regions. The purpose of the environmental profiles is to feed discussions on the environment and possible consequences environmental trends may have on OCTs socio-economic development, and more specifically, to assist the EU in programming its EDF assistance to the OCTs.

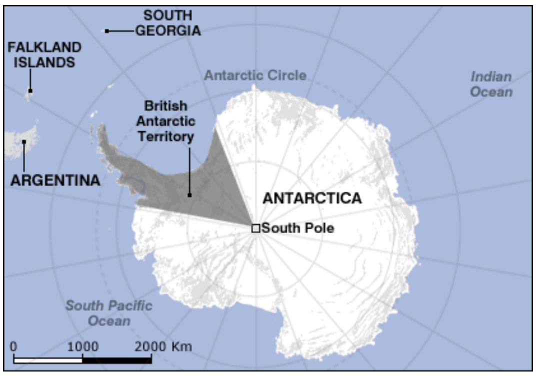
This volume comprises an overall profile in which the territories are treated in the context of the South Atlantic region as a whole, followed by the environmental profiles for the individual territories (Annexes A to D).

2 DESCRIPTION OF THE REGION

South Atlantic region is considered for the purpose of this work as comprising the islands lying in the Atlantic Ocean south of the equator, in the Atlantic sector of the Southern Ocean, and the Antarctic continent. There are not many islands/territories in this region, and the territories which do occur tend to be fairly remote from one another. There are four OCTs in the South Atlantic region, namely

- St Helena (SH), Ascension (AI) and Tristan da Cunha (TdC),
- the Falkland Islands (FI),
- South Georgia and South Sandwich Islands (SGSSI), and
- the British Antarctic Territories (BAT).





Sources: freespace.virgin.net, www.coolantarctica.com and news.bbc.co.uk

Although St Helena, Ascension and Tristan da Cunha constitute a single OCT, they have distinct characteristics, and are treated separately where possible in this regional section.

These OCTs are all UK overseas territories. The territories span the South Atlantic region from just south of the equator to the South Pole. All except BAT are remote islands or island groups. The distances between the islands are very large both between different islands of the same OCT and between OCTs.

1 The term overseas countries and territories refers to the 25 countries and territories which, although falling within the sovereignty of a Member State of the European Union, are wholly or partly autonomous.

The islands are also isolated from mainland. Isolation is thus an issue. Their physical remoteness is compounded by a lack of transport infrastructure. There is no airport on St Helena (although one is being built), TdC and SGSSI, and no public airport on Ascension Island (just military[2]) or BAT (for science use). There is also a lack of deep-water landing facilities.

The territories are all rocky, rugged and mountainous, and there is little low-lying land on them. Some (St Helena, Ascension Island, Tristan da Cunha, South Sandwich Islands) are of volcanic origin and indeed there is active volcanism on the last two mentioned. BAT and SGSSI are situated south of the Antarctic Convergence (or Polar Front), a line of discontinuity in ocean temperature in the southern hemisphere caused by the global thermohaline system which also acts as a kind of biological barrier between the Antarctic region and the rest of the planet. These two territories are largely covered by snow and ice.

3 Key facts and statistics

Key facts and statistics for OCTs in the South Atlantic region						
OCT	**Land area (km^2)**	**EEZ (nm)**	**Population**	**inhab/km^2**	**GDP/cap (€)**	**Illiteracy rate**
BAT	1.7 million	none	no permanent	not applicable	not applicable	not applicable
Falkland Islands	12,200	550,872	2,543 + 278 at Mount Pleasant Airfield (2012[3])	0.23	39,200 (2012)	0%
SGSSI	3,755	1,449,532	no permanent	not applicable	not applicable	not applicable
St Helena	122	444,916	4,257	35	4,790*	5.3%
Ascension Island	88	441,658	702	8	4,790*	1%
TdC	98	754,720	262	2.6	4,790*	1%
* Overall average for St Helena, Ascension and Tristan da Cunha						

Three of the territories do not have permanent population. In the BAT and SGSSI there are only a small number of researchers, government officers, military and visitors stationed there temporarily. Ascension Island is a military base and only those that work on the island have the right to live there: there is no right of abode or right of property ownership for residents. The population of the islands (excluding BAT and SGSSI) ranges from 254 (Tristan da Cunha) to 4257 (St Helena). The islands are all relatively sparsely populated, particularly the Falkland Islands and Tristan da Cunha, which have very low population densities.

Estimates of per capita GDP only exist for St Helena, and for the Falkland Islands. These are € 4,790 per annum for SHATdC (average for the three island territories) and almost € 39,200 for the Falkland Islands, 8 times larger.

2 It is a military airport, but the public can use it to go to the UK/ Falkland Islands.
3 Falkland 2012 Census

Economy				
OCT	**Fisheries**	**Tourism**	**Hydrocarbon/Mineral**	**Other**
BAT		⭘		Self-financing. Major income from sale of postage stamps and taxes from over-wintering scientists.
Falkland Islands	●	⭘	The territory is preparing for oil exploitation.	Self-financing. Sheep farming also important. Oil exploration ongoing.
SGSSI	●	⭘		Self-financing. Other incomes: stamps and sponsored conservation projects.
St Helena	⭘*			Depends on UK aid.
Ascension Island	●[4]			Self-financing.
Tristan da Cunha	●*			Nearly self-financing, but in a difficult period. 80% of the economy stems from lobster fishing. The rest relates to tourism and the sale of postage stamps and coins.
○ Unimportant ⚪ Artisanal / incidental / mainly for tourists ⭘ Moderate activity ● Major activity * Important for own consumption				

The fisheries have at least some importance for all the 6 territories. Fishing is the mainstay of the economies of the Falkland Islands and Tristan da Cunha, and very important on the SGSSI. On St Helena fishing is at a more moderate level, but nevertheless forms the major export of the island. Fishing has recently been the largest income of Ascension Island government, and is practiced by foreign vessels as most of the islanders are employed by one of the 'users[5]' of the island – one of the priorities for Ascension is the strengthening of fisheries sector and a 6 month pause in issuing licences is currently ongoing enabling Ascension government to review the regime and put a new one in place. The BAT does not itself licence fishing, but as a member of the Antarctic Treaty and CCAMLR participates in enforcement activities. The SGSSI established a large sustainably managed MPA (IUCN Category VI); Saint Helena's pole and line and rod and line tuna fisheries (undertaken by small artisanal fisheries boats), Tristan da Cunha rock lobster fisheries and Falkland Islands longline fisheries are currently Marine Stewardship Council certified as is the SGSSI toothfish fishery, and several companies involved in the mackerel icefish and krill fisheries. This indicates the territories are achieving to manage fisheries well, with strict conditions attached to fishing licenses and are implementing reasonably well monitoring, control and surveillance. They have also succeeded in minimising incidental mortality of seabirds from fishing, a major problem in many of the other fisheries in the southern hemisphere.

In addition to fisheries, the islands would all like to increase their earnings from tourism (or are subjected to increasing tourism anyway). None of these territories is likely to become a mass tourism destination, but have identified niche tourist markets which they are trying to develop.

4 An important source of revenue for the local government is the licence fees of offshore marine fishery (mainly big-eye and yellow-fin tuna) to foreign vessels. Fisheries sector is not organised.

5 Ascension has no right of abode. All inhabitants can only stay in the island while being employed (or be dependente of someone employed). The Ascension Island Government (AIG) came into being in 2002, taking over some of the roles of the London Users Committe, representing the companies operating in the island.

4 Biogeography, endemism and importance for global biodiversity

The territories have in common that they were all only relatively recently settled by humans (i.e. in the last 300 years). The flora and fauna are determined in large measure by their remoteness, insularity and (for seabirds) their strategic situation in the ocean. The territories are homes and/or breeding grounds to globally important seabird populations, notably albatrosses and petrels, many species of which are threatened and all of which are declining.

Although the seas are rich in marine mammals, there are very few native terrestrial mammals on these territories. However, a number of terrestrial mammals have been introduced, either intentionally or inadvertently. These include cats, mice, rats, sheep, goats and reindeer. Many of these introduced species have had a great impact on the native flora and fauna.

Many islands exhibit high endemism[6]. The isolation conferred by their insularity favours this phenomenon and the more remote a territory, the higher its endemism often is. Endemism confers a special responsibility on the country or territory concerned since it is the sole steward of the fortunes of that species. The following tables display some (incomplete) statistics on endemism in the South Atlantic OCTs.

Endemism and other wildlife values in the South Atlantic region							
	Endemism						
Territory	**Birds**	**Reptiles, amphib.**	**Insects**	**Plants**	**Fresh-water fish**	**Terrest. invert.**	**Other notable aspects of wildlife (threatened species, etc.)**
BAT[7]	0			Some fungi	5 marine	3	These data are for Antarctic, not BAT only
Falkland Islands	2[8]	One butterfly and 16 spider	250 One butterfly and 16 spider	14 vascular 25 mosses	2		Breeding ground of more than 70% of the world population of black-browed albatross (EN) and 75% of the world population of the southern form of rockhopper penguins (VU). Another 8 bird species which nest on the island are of global conservation concern, including the macaroni penguin, the southern giant and white-chinned petrels and the Cobb's wren. New species of intertidal and shallow waters are being identified with a high level of endemism.
SGSSI	1 (5 now extinct)			25 lower plants (also endemic mosses and lichens)			95% of the world population of Antarctic fur seals, 40% grey-headed albatross (EN), 50% of the breeding population of white-chinned petrel (VU), >50% of the breeding populations of southern elephant seals and 45% king penguins. World's largest breeding populations of light-mantled sooty albatross, northern giant petrel and white chinned petrel. Marine: important hydrothermal vent communities, and 56% of the 112 bryozoa species 46% of the 161 mollusc species, and 24% of the 283 crustacean species are believed to be endemic.
St Helena	1	-	140	49	10	400	5 other endemic land birds have become

6 Endemism refers to the phenomenon that a species occurs in only one country (or island or group of islands). The species is then said to be endemic to that country.
7 Data is for Antarctic rather than only BAT – souce http://lntreasures.com/antarctica.html
8 http://www.birdlife.org/datazone/country/falkland-islands-malvinas

							extinct. In SH new marine invertebrates in the process of being identified
Ascension Island	1			7 (10 endemic species, 3 are thought to be extinct)	(11 marine)	>20	Home to 11 species of seabirds among which Ascension frigatebird (endemic) and the red-footed booby (EN). Very important breeding green turtle population.
TdC	2	-		20 fern, 34 flower plants	-		Gough and Inaccessible Islands are a Natural World Heritage Site. Endemic birds Tristan thrush and the rare Inaccessible Island rail. Important as nesting place for millions of sea birds, and for fur and elephant seals.

Regarding habitats, the situation is as follows:

Extent of habitats in South Atlantic region						
	Mangroves	**Sea-grass**	**Wet-lands**	**Dry forest**	**Polar habitat**	**Remarks**
BAT	○	○	○	○	●	
Falkland Islands	○	○	○	○	○	Few trees.
SGSSI	○	○	○	○	◉	
St Helena	○	○	○	◉	○	Isolated patches of semi-natural forest, <1% cover
Ascension Island	○	○	○	◉	○	Originally barren, devoid of trees. Now cloud forest of introduced species in high zone.
TdC	○	○	○	○	○	
● Extensive		◉ Some			○ None	

The territories have established the following protected areas:

Protected areas					
	Marine	**Terrestrial**	**Unesco World Heritage**	**Ramsar**	**Remarks**
BAT		14 ASPA[9]			Proposed by the UK, one with Chile.
Falkland Islands		19		2	22 Important Bird Areas and 17 Important Plant Areas have been identified but these sites are not yet designated. Two Ramsar sites and a further 18 have been proposed.
SGSSI	1.07 million km^2 (Category VI IUCN)				SGSSI are currently working toward implementing a series of terrestrial specially protected areas. There is also a season closure of the fishery, 20,431 km^2 of no-take zones (IUCN category I).

9 ASPAs are designated under the Antarctic Treaty to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research.
(http://www.ats.aq/devPH/apa/ep_protected_search.aspx?type=0&num=&name=&prop=41&lang=e)

St Helena		1			Currently developing a protected areas network.
Ascension Island		1			6 terrestrial nature reserves and one nature sanctuary (an offshore bird breeding stack) proposed[10]. Currently there is no sufficient data to propose a marine PA, but the collection of such data is an on-going priority for AIG.
TdC		44%	Gough and Inaccessible Islands		

5 ISSUES AND THREATS

The following table summarises the state of the environment regarding the priority issues in the South Atlantic territories:

Main environmental challenges and problems in OCTs in South Atlantic region				
OCT	**Challenge / problem**	**Severity**	**Short description**	**Status 2007[11]**
BAT	Climate change	Moderate	Climate change induced phenomena are occurring and have potential to impact global earth systems. Further research is required.	M
	Unregulated fishing and seabird by-catch	Moderate	CCAMLR now believes that the level of IUU fishing has decreased but combating it still remains a top priority, as it has the potential to seriously undermine CCAMLR's conservation objectives. Bird mortality in the licensed CCAMLR fisheries has been greatly reduced, e.g. only one bird was killed in the Krill fishery around the South Shetland Islands in the 2011/12 season,	M
	Marine debris	Moderate	Despite the controlling and awareness raising by CCAMLR, the problem persists[12].	M
	Pressures due to tourism	Reduced	Tourism is increasing very rapidly. Impacts need monitoring and managing	Attention reqd.
Falkland Islands	Threats to biodiversity	Moderate	Include fishing by-catch, introduced predators and other invasive species, disturbance, habitat loss. There has been significant efforts done with some positive results. However, this is a long term process that requires continuous attention and funding.	M

10 It is anticipated that this legislation will be in place June 2014
11 M for moderate, S for severe, NI for not indicated.
12 Eriksson, C. et al., 2013, Daily accumulation rates of marine debris on sub-Antarctic island beaches, Marine Pollution Bulletin 66 (2013) 199–208.

	Unregulated fishing	Moderate	Fisheries management in FI has achieved successes, and the longline fisheries is currently MSC certified. The main issue is the fact that commercial fisheries target migratory species and there is no effective regional fisheries management organisation in the Southwest Atlantic. Fishing in international waters is completely unregulated, and within other national jurisdictions is less well regulated. Joint management on straddling stocks does not exist because of the lack of an RFMO and indeed one major fishery has suffered as a result.	M
	Impacts from future oil industry	Moderate	No oil has yet been pumped in commercial quantities in the Falkland Islands, either from land or offshore. Nevertheless resources were found and process is ongoing to start exploitation. The territory needs to prepare legislation, contingency plans, and the private sector involvement in order to seize the opportunity and preserve the environment.	M
	Waste, incl. marine debris	Severe	Lack of policy and legislation and inadequate practices. The situation has not changed since 2006. Problem is getting worse.	Attention reqd.
	Sewage	Attention reqd.	Wastewater discharge at Stanley port was reduced to 12% of the previous level. It is not a priority for the government at the moment.	Attention reqd.
SHATdC	Threats to biodiversity	Severe	Include introduced predators and other invasive species, disturbance, habitat loss. Work is being done by the governments and civil society, but the problems persist and require continuous attention and funding.	M
	Illegal fishing	Moderate	Very limited capacity to enforce fishery regulations	M
	Waste	Severe	Problems in Saint Helena and Ascension Island are related to the limited capacity and inadequate methods used at both landfills. Locating and financing new waste disposal facilities are challenging given that the critical mass needed to make a sound modern disposal facility is lacking. The SH Solid Waste Management Strategy (2012) provides a roadmap to minimise waste on the island. The AIG has purchased an incinerator, a baler and a glass crusher, but is still deciding if to form agreement with companies for managing waste	Attention reqd.
	Climate change	Moderate	Main concerns are severity of weather, on already isolated territories. Changes in ecosystems (such as cloud forest in Saint Helena) due to temperature variations, with the potential to affect fisheries.	Attention reqd.
SGSSI	Introduced species	Moderate	Measures such as rat, reindeer and alien flora eradication are ongoing with success. The priorities now are flora and marine environment, the first due to the time it takes for impacts to be seen, the second due to lack of knowledge.	S

	Illegal fishing and seabird by-catch	Moderate	Resolved in the territory with the establishment of the marine protected area of sustainable fisheries. However bird populations continue to decline, partly due to high levels of by-catch in fisheries off the coast of South Africa and South America. The lack of international agreement and enforcement of bird by-catch mitigation methods in many fisheries, coupled with a lack of high seas enforcement contribute to hamper a more substantial and widespread progress.	M
	Climate change	Moderate	Glaciers are melting, opening way to the propagation of rodents and other invasive species. This will exacerbate the pressures imposed by invasive species. As krill is in its northernmost area, climate change might influence the abundance of the species, which in turn will affect the whole food chain.	NI
	Hazardous waste	Moderate	Hazardous waste and marine litter is found in the territory in the form of wrecked vessels (Two vessels that wrecked on Cumberland Bay have been removed of oil and fishing gear but continue to gradually break up), discharged oil or fuel, discarded rubbish or fishing gear, or discharged waste or ballast water, as well as asbestos and oil tanks in whaling stations that continue to degrade.	Attention reqd.

There is considerable scientific uncertainty about the response of the Antarctic to climate change. According to IPCC[13], over the period 1993 to 2010, global mean sea level rise is, with high confidence, consistent with the sum of the observed contributions (ocean thermal expansion due to warming, changes in glaciers, land water storage, Greenland ice sheet and Antarctic ice sheet). The average rate of ice loss from the Antarctic ice sheet has likely increased from 30 [–37 to 97] Gt/year over the period 1992–2001 to 147 [72 to 221] Gt/year over the period 2002 to 2011. There is very high confidence that these losses are mainly from the northern Antarctic Peninsula and the Amundsen Sea sector of West Antarctica.[14] This means that the consistent regional rate of warming in the Antarctic Peninsula, which is more than twice the average for other Antarctic stations, is a large contributor to 10%[15] of global sea level rise. Besides, there is evidence that there is less Antarctic Bottom Water being formed due to increased precipitation (see BAT territorial profile). This is cause for concern, as the current takes up heat and carbon from the atmosphere[16] and its decrease makes a positive feedback loop for climate change. The global ocean thermohaline circulation is the climate regulator worldwide and changes in its characteristics can have effects on the heat distribution around the globe generating a cascade of phenomena. The impact of climate change on BAT is therefore of global interest.

In terms of local impacts, the main concern relates to the impact of climate change on fisheries. A warming of seawater, the retreat of sea-ice and changes in marine currents may have major impacts on the local supply of nutrients and the marine habitat generally. The effect of these on food chains and population compositions and their impact on fisheries is not known. This concern extends up to SGSSI where the krill is in their northernmost territory. Warming of surface waters can lead to changes in the type of phytoplankton and on a southward migration of krill, which is a crucial element in the local food webs.

Most of the fish species of commercial interest in the South Atlantic, with the exception of the Tristan crayfish, are migratory species, which spend much of their time in the high seas or in other territorial

13 Climate Change 2013: The Physical Science Basis – IPCC (http://www.ipcc.ch/)

14 Climate Change 2013: The Physical Science Basis – IPCC (http://www.ipcc.ch/)

15 The somewhat limited impact is due to the fact that a large proportion of ice shelves were floating, so their melting does not directly add to sea level.

16 The Southern Ocean takes up approximately 60 percent of the anthropogenic heat produced on Earth and 40 to 50 percent of the anthropogenic carbon dioxide.

waters. This applies particularly to the illex squid (Falkland Islands) and tuna (Saint Helena and Ascension). Good management of the fisheries within territorial waters is to no avail if the stocks are exposed to uncontrolled fishing in international waters. Waters south of the Antarctic Convergence are managed by CCAMLR. St Helena, Ascension and Tristan da Cunha fall under SEAFO, whose main focus is much more on the waters of Western Africa. The waters in the Southwest Atlantic around the Falkland Islands and some of those around SGSSI (i.e. those not within CCAMLR jurisdiction) are not subject to any RFMO at all. Although considerable efforts have been made to establish a RFMO, the poor relations between Argentina and the UK, two of the main players in this region, has been an obstacle. A similar situation occurs with the bird by-catch. Although measures are implemented in the Falkland Islands and SGSSI territorial waters, these same measures are not implemented in high seas fisheries and in IUU fisheries.

Invasive species are a problem in all inhabited territories. Mice, rats, goat, reindeer have all been targeted with actions towards their elimination, and success has been achieved. But it is not easy to achieve long lasting results, and particularly mice continue to be a pressure. The concern is moving towards controlling flora as well as the marine environment. The former requires long term action, different from the eradication of large mammals. Addressing the latter requires a wealth of baseline information that is currently not available and needs to be assessed. Ballast waters are a serious problem carrying species from one place to the other.

The South Atlantic OCTs, as many island states, face special problems in relation to waste management:

- lack of the critical size and therefore ability to benefit from the economies of scale needed to make modern waste management techniques - sanitary landfills, safe incinerators - economic;
- lack of facilities, critical size, markets to make recycling and composting feasible;
- lack of public awareness about waste;
- lack of facilities for dealing with hazardous waste including infectious clinical waste and oils;
- lack of suitable space for and resistance by local residents to new landfills;
- marine debris is a particular problem in the South Atlantic.

There is a need to devise solutions for reduction of imports of waste generating products or incentives towards recycling or returning the waste to origin[17]. There is also a need to establish agreements with other countries and territories, to allow export of waste.

Wastewater is generally pumped untreated directly into the sea or disposed of in septic tanks or soakaways. There is little monitoring of the impact of these discharges on the quality of the surrounding seawater or of the groundwater.

These territories are windy and have high rates of solar irradiation, offering good prospects for renewable energy sources. At the same time, electricity generation using diesel engines is costly and inefficient. The Falkland Islands have made substantial progress on renewable energies and will continue to do so. By 2010 about 50% of electricity in FI was from renewable energy. St Helena also has a small number of wind turbines, which in theory account for 9% of the island's electricity demand.

17 This can be achieved with a well-defined ecological tax.

6 Review of environmental governance

6.1 Institutions

There are limited resources available on these sparsely populated islands. The collaboration between the institutions of these territories is growing.

Summary of environmental management administration in South Atlantic OCTs		
OCT	**Summary of government administrative capacity**	**NGOs**
BAT	Advice on environmental matters is provided by the British Antarctic Survey (BAS) CCAMLR provide a forum for monitoring environmental activities and fishing	United Kingdom Antarctic Heritage Trust (UKAHT) manages historic sites on behalf of BAS.
FI	Environmental Planning Department comprising five staff including an Environmental Planning Officer (EPO), an Environmental Officer and a Biosecurity Officer. Water, waste and renewable energies are dealt by Public Works and FIG policy agencies. Fisheries Department has a chief scientist, data analyst and three stock assessment scientists. Department of Mineral Resources is responsible for overseeing the exploration and extraction of hydrocarbons and other minerals. Environmental matters are considered by an Environment Committee, comprising two Councillors, the EPO and a range of business (fisheries, farmers, tourist board) interests and NGOs. Falkland Islands Offshore Hydrocarbons Environmental Forum comprises representatives of the oil industry, environmental organisations and Government departments. The Forum meets to provide a means for structured formal and informal consultation on proposed and ongoing hydrocarbon exploration and production activities that may affect the natural environment in and around the Falkland Islands	A variety of NGOs. Falklands Conservation (10 staff) promotes nature conservation in the islands, provides support to external researchers and landowners, owns 17 offshore island nature reserves, and gives specialist conservation advice to the government. South Atlantic Environmental Research Institute, founded in March 2012 is an academic organisation conducting research (natural and physical sciences) in the South Atlantic from the tropics down to Antarctica, in cooperation with other UKOTs. Shallow Marine Survey Group is a non-profit organisation created in 2006 to improve understanding the almost pristine and unexploited marine environment surrounding Falkland Islands, but also collaborates with other UKOTs.
SGS SI	Government Officers on South Georgia deal with day to day environmental and fisheries management with general oversight and policy development undertaken by GSGSSI staff based in the Falkland Islands. Support on environmental governance is provided by the British Antarctic Survey, by the Centre for Environment, Fisheries and Aquaculture Science[18] (CEFAS) and by other consultants. Fisheries conservation measures are set by CCAMLR south of 60º S and GSGSSI also applies these to their EEZ. Surveillance and patrolling are carried out by the Fishery Officers (provided under contract from the Fisheries Department in the Falkland Islands) based on the fisheries patrol vessel Pharos SG.	South Georgia Heritage Trust coordinating rodent eradication project.
SH	Environmental Management Division (EMD) comprised of four sections (staff 28): Environmental Advocacy, Marine Conservation Section, Terrestrial Conservation Section, and Environmental Risk Management. Environmental health, agriculture and fisheries, planning and disaster management committee are also part of environmental governance. In 2012 about 162 people whose job has an environmental function; of these 119 were employed by the government and the	National Trust: a statutory body including all environmental NGOs, launched in 2002. Its mission is to preserve natural environment and historical monuments. Also active in information and awareness-building.

18 The Centre for Environment, Fisheries and Aquaculture Science (Cefas) is an executive agency of the United Kingdom government Department for Environment, Food and Rural Affairs (Defra). It carries out a wide range of research, advisory, consultancy, monitoring and training activities for a large number of customers around the world.

	remaining 43 were employed by the private sector	
AI	Government Conservation department currently counting with 12 staff members working on various biodiversity projects. There is a government Waste Management department. Environmental Health deal with e.g. pest control. Facilities management deals with sewerage. A Fisheries Unit established in 2014. Fire and sea rescue deals with civil protection.	Ascension Heritage Society is an informal cross-sectorial environmental forum and local voluntary conservation organisation for built heritage.
TdC	Tristan Conservation Department (TCD) staffed with 4 persons is responsible for administering the Island's environmental policies, as well as Nightingale, Inaccessible and Gough Islands. The Fisheries, Agriculture and Natural Resources Department and the Public Works department deal with the remaining environmental components and with electricity.	

6.2 POLICIES, STRATEGIES, PLANS, AWARENESS AND MONITORING[19]

Territories are making progress towards a sound basis for environmental management which responds to the specific needs of the territory. Broadly speaking, given the small size of these territories, they are making progress in developing an appropriate policy framework needed to manage their environment.

OCT	Sustainable Development	Environment	Biodiversity	Climate Change	Spatial planning	Marine/ Fisheries	Other	Remarks
BAT		✓	✓				✓	Environmental management is provided for through the Antarctic Treaty system together with agreements ratified by its members. These have been implemented in British law (which applies to British nationals throughout the Antarctic continent). Five year strategy for the territory
Falkland Islands	✓	+/-	✓		✓		✓	Falkland Islands Plan includes an axis on protecting environment through environmentally sustainable development. Falkland Islands Structure Plan (2001-16)[20] provides policies and proposals, covering protection of air, land and water; safeguarding landscape, heritage and biodiversity. Falkland Islands Biodiversity Strategy[21] (2008-18) identifies the key environmental assets and risks of extinction, and proposes protection 45 action tasks. Falkland Islands Government National Oil Spill Contingency Plan 2009. National plan of action – seabirds, which addresses the issues of incidental seabird mortality in fisheries.
SGSSI	✓	✓	✓			✓		South Georgia Plan for Progress (2006-2010) includes the protection of the environment. There is an environmental management plan for South Georgia (not for SS), currently being updated. Marine protected area management plan. Policy on the control of introduced species
St Helena	✓	✓	+/-	+/-	✓	+/-	✓	Sustainable Economic Development Plan (2012/13 – 2021/22) and Sustainable Development Plan (SDP)

19 Legend: Sustainable development – environment is included in the overall territory development plan or strategy; Environment – indicate environmental management plan and/or water and sanitation and waste plans; Biodiversity – protected areas, species, strategy on invasive, etc.; Climate change –policy, strategy, or adaptation/mitigation programmes; Spatial planning – including coastal zone management; Marine / fisheries –strategy/plan on marine issues (blue growth) and fisheries master plans or management programme; Other – there is at least one of the following: forest, renewable energy and energy efficiency

20 http://www.epd.gov.fk/?page_id=131

21 http://www.epd.gov.fk/wp-content/uploads/BiodiversityStrategy09.pdf

								2012/13-2014/15 include environment as an asset. National Environmental Management Plan 2012-2022, Solid Waste Management Strategy (2012), Land Development Control Plan. In preparation: Peaks National Conservation Area Management Plan, the Plant Collection, Propagation and Distribution policy; the Research policy; and the Climate Change policy went through a range of consultation periods during 2012/13 and it is planned that these will be formalised in 2014. Marine management plan and marine and coastal species action plans are being prepared (expected November 2014).
Ascension Island	**+/-**		**+/-**					The Ascension Island Management Plan 2003-08 includes some commitments of the Environment Charter. Now outdated. Ascension Island is producing the first National Biodiversity Action Plan (NBAP) for Ascension Island funded by the Darwin Initiative. The BAP will be broken down into a series of Habitat Action Plans and Species Action Plans.
TdC	**+/-**		+/-					A revised Biodiversity Action Plan is expected to be published in 2014. An implementation plan is also in place for the Agreement on the Conservation of Albatrosses and Petrels (ACAP). Management plans exist for Gough and Inaccessible Islands and one is being prepared for Nightingale Island.

It should be noted that some of the items marked +/- correspond to ongoing work, to be published in 2014.

6.3 Legal Framework

The OCTs cannot sign MEAs in their own right. But OCTs can take on the responsibilities of an MEA if the associated sovereign state (in this case the United Kingdom) has signed the MEA and asks, at the request of the OCT, that the MEA is extended to the territory of the OCT. If this happens, and if the OCT complies with the obligations of the treaties concerned and implements them fully, it can be an effective way of protecting its natural capital.

The situation with regard to some of the most relevant MEAs is as follows:

OCT	MEAs Party	Remarks
BAT	UK is a party to Antarctic Treaty and accompanying: Convention for the Conservation of Antarctic Seals, 1972 (CCAS); Convention on the Conservation of Antarctic Marine Living Resources, 1980 (CCAMLR); Protocol on Environmental Protection, 1991. Also: The Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA) CMS - Agreement on the Conservation of Albatrosses and Petrels (ACAP) Basel Convention	UK is part of the Antarctic Treaty System on behalf of BAT, SGSSI, and Falkland Islands (which have fishing interests within CCAMLR region). UK Antarctic Act 1994, implements the Protocol on environmental protection to British nationals. Antarctic Act 2013 implemented into UK law the provisions of Annex VI to the Protocol on Environmental Protection, regarding liability arising from environmental emergencies.

Falkland Islands	Antarctic Treaty, Ramsar Convention, Convention on International Trade in Endangered Species (CITES), Convention on the Conservation of Migratory Species of Wild Animals (CMS), London Convention Marine Pollution by Dumping of Wastes and Other Matter, International Convention on the Regulation of Whaling, World Heritage Convention, International Convention on Civil Liability for Oil Pollution Damage (CLC), International Convention for the Prevention of Pollution from Ships (MARPOL), UNFCCC Kyoto Protocol	CITES is strictly applied.
SGSSI	ACAP, CCAMLR South of 60ºS and voluntary throughout EEZ. Antarctic Treaty, International Convention on the Regulation of Whaling, Convention on the Conservation of Migratory Species of Wild Animals (CMS), Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol, Aarhus Convention UNCLOS (UNC Fish Stocks), London Convention Protocol to amend the International Convention on Civil Liability for Oil Pollution Damage and Protocol to amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage	No official Ramsar site yet, but two sites have been proposed. Although CITES has not been formerly adopted by SGSSI, its provisions are broadly reflected in SGSSI's custom ordinances.
SHATdC	Ramsar Convention on Wetlands, Convention on Biological Diversity (CBD), Bonn Convention on Migratory Species (CMS), CITES, Agreement on the Conservation of Albatrosses and Petrels** (ACAP), London Convention, World Heritage Convention, South-East Atlantic Fisheries Organisation (SEAFO) Convention	Ramsar applies only to Saint Helena. ACAP applies only to Tristan da Cunha. Gough and Inaccessible Islands have been declared a World Heritage site. Ascension Island Government is currently drafting CITES compliant legislation.

Nationally legislation covers the following areas (taken from territorial profiles).

Legislation	**BAT**	**Falkland Islands**	**SGSSI**	**St Helena**	**Ascension Island**	**TdC**
Conservation of species	✓	✓	✓		✓	✓
Sites and habitats	✓	✓	✓	✓	✓	✓
Terrestrial & Marine development control		✓		✓		
Environmental impact assessment and SEA	✓			✓ EIA only		
Oil related	✓	✓				
Waste	✓					
Ozone		✓				
Water and wastewater				✓		
IUU fisheries	✓	✓	✓	✓	✓	✓
Other relevant sectorial legislation with environment related requirements	Antarctic Treaty legislation	✓ Planning Ordinance, offshore minerals				

7 Cooperation

7.1 Relevant regional organisations and programmes

There are a number of regional organisations important in a technical or financial sense for the purpose of these environmental profiles. These include:

Name	**OCT members**	**Other members**	**Remarks**
Antarctic Treaty System Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)	UK on behalf of BAT and SGSSI and Falkland Islands (which have fishing interests within CCAMLR region)	50 member nations, 29 consultative and 21 non-consultative	Enacted in 1961 Aim: to "ensure that Antarctica is used for peaceful purposes, for international cooperation in scientific research, and does not become the scene or object of international discord." It was established mainly in response to concerns that an increase in krill catches in the Southern Ocean could have a serious effect on populations of krill and other marine life; particularly on birds, seals and fish, which depend mainly on krill for food. CCAMLR - Provides a legal framework for the management of fisheries south of the Antarctic Convergence. Management follows an 'ecosystem' approach Protocol on Environmental Protection - The Protocol also designates Antarctica as a natural reserve, devoted to peace and science. The Protocol has six annexes, five of which are in force.
South Atlantic Working Group of the UK Overseas Territories Conservation Forum (OTCF)	SHATdC, SGSSI, Falkland Islands	UK govt., OTCF	The OTCF is an association whose members include all the UK overseas territories, the UK government and conservation organisations. The South Atlantic Working Group includes the members in the South Atlantic region, and meets twice yearly to discuss matters of mutual interest.
South-East Atlantic Fishery Organisation (SEAFO)	UK for SHATdC		Signed by the UK in April 2001 on behalf of SH and Dependencies. SEAFO is a regional fisheries management organisation in South-East Atlantic Ocean established in line with the provisions of the United Nations Law of the Sea (Article 118) and United Nations Fish Stocks Agreement (UNFSA). Aim: The objective of its Convention on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean is to ensure the long-term conservation and sustainable use of the fishery resources in the Convention Area through the effective implementation of the Convention. The Convention Area excludes exclusive economic zones of the coastal states in the region.
Legal toothfish operators (COLTO)	Members operate in waters surrounding territories of Argentina, Australia, Chile, Falkland Islands, France, South Africa and the UK.		Professional association of toothfish fishers. Aim: promote sustainable toothfish fishing and fisheries; facilitate its members working together and with others, including through continued provision of high quality scientific data to CCAMLR; provide effective representation for its members. In total, COLTO members represent legal catches of more than 85% of the total global legal production of toothfish, which equates to almost 20,000 tonnes (green weight) per year
South Atlantic Environmental Research Institute (SAERI)	Falkland Islands Board include SGSSI Director of Fisheries		Founded in March 2012 Aim: Academic organisation conducting research on natural and physical sciences in the South Atlantic from the tropics down to Antarctica, enhancing cooperation between South Atlantic OCTs. It aims to conduct world class research, teach students, and build capacity within and between the South Atlantic OCTs.

Of the above bodies, one (SEAFO) is a classic regional fishery management organisation (RFMO), CCAMLR is in many ways like a RFMO but has a wider brief related to more general nature conservation in the Antarctic region.

7.2 Relevant regional initiatives and projects

From 2006 to 2009, the European Commission funded a regional project "Increasing regional capacity to reduce the impacts of invasive species on the South Atlantic UK overseas territories". Invasive species education materials have been developed. Training has been delivered including for border/quarantine staff. Study visits to learn about aerial eradications and restorations were organized to the Pacific Invasives Initiative. Besides, the project found new populations of the endemic Cobb's wren, supported fox surveys and garden plant surveys, supported work to eradicate rats and foxes from the Falkland Islands.

8 Recommendations for cooperation in the environment between the European Union and South Atlantic OCTs

This section considers recommendations at the level of the South Atlantic region. Recommendations with regard to individual OCTs are made at the end of the individual OCT environmental profiles. Part 1 of this report contains recommendations at the overall and interregional levels.

It should be borne in mind that two of the territories in this region - the British Antarctic Territory and South Georgia and the South Sandwich Islands - have not been recipients of Community aid, as they are self-financing territories without a permanent population.

Many of the environmental problems and challenges faced by the South Atlantic OCTs are essentially the same ones. The following common issues were identified by the territories:

Issues	Severity
Waste including marine debris	All four. The problem in BAT is marine debris. In SGSSI, marine debris, plus wrecked vessels and asbestos and oil abandoned station are degrading. In Saint Helena, Ascension Island and Falkland Islands the problem is more related with waste produced on the islands.
IUU fisheries	Moderate for all four territories. Although much has been achieved in combating IUU fisheries and reducing bird by-catch, continuous attention is required. Bird population declines are related with practices outside of the EEZ of the territories. There is also a need for regional integration of Falkland Islands.
Invasive species	Severe for SHATdC and Moderate for Falkland Islands and SGSSI.
Climate Change	Moderate for all except Falkland Islands. Anyway Falkland Islands are implementing a climate change risk assessment on terrestrial ecosystems to determine how severely the territory will be impacted.

The South Atlantic territories have achieved some progresses worth mentioning and that can be replicated by other OCTs, in and out of the region.

Actions	Comment
Action against invasive species	Falkland and SGSSI have achieved very good results in eradicating fox and reindeer respectively. SGSSI currently has ongoing programs to remove invasive plant and rodent species.
Increase protected areas (terrestrial and marine)	SGSSI has the largest Marine Protected Area for sustainable fisheries in the world. Ascension is developing an NBAP that will include number of Species and Habitat Action Plans. Work of department, external organisations and visiting researchers will be linked to one or more NBAP objectives. NBSAP will be continually updated as targets are met and new research becomes available and will be hosted in a website. EMD Marine Conservation team of Saint Helena is completing a Marine Biodiversity and Mapping Project in 2014, based on which marine protected areas will be defined.
IUU Fisheries	TdC lobster fishery is MSC certified Falkland Lon Line fisheries is MSC certified. The sector has developed bird-scaring devices and other mitigation reducing accidental mortality of seabirds by 90% SGSSI toothfish longline fishery is MSC certified, as are some of the companies/vessels fishing in its other two fisheries (krill and mackerel icefish). Saint Helena pole & line and rod & line tuna fisheries, undertaken by small artisanal fisheries boats is Marine Stewardship council certified CCAMLAR has very developed restriction on fisheries south pf 60ºS
Reduce energy dependency	SGSSI energy comes from small hydropower plant. Falkland has a high level of wind energy. Saint Helena is also investing on renewable energies and currently 19% of the electricity comes from 12 wind turbines and 1% from photovoltaic systems.
Improve waste water and solid waste collection and (re)use	Saint Helena is implementing waste management strategy (2012) and changing habits. Falkland has reduced to 12% of the original value the wastewater discharge into port at Stanley

In some cases similar solutions might apply. This being the case, it might appear sensible to set up multi-territory/country projects in the region to tackle these problems and find common solutions.

As a general matter, the EU regards St Helena, Ascension and Tristan da Cunha as a single UK Overseas Territory, although they have separate Councils, legislative procedures and budgets. A consequence of this is that cooperative projects between these islands do not qualify for EU regional funding. Given the sparseness of territories in the South Atlantic, this reduces possibilities for cooperation. It is recommended that cooperative projects between these islands can be fostered and supported.

Although not mentioned as an issue, renewable energies are a good option, as long as practically feasible. Falkland Islands have developed quite some expertise particularly on wind power, while SGSSI has small hydropower. These experiences can be shared with other South Atlantic OCTs.

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Improve climate change resilience	Increased research and integrate results in development	Climate change in BAT is prone to have regional and global consequences that need to be researched even further. Regionally the changes in marine ecosystems might occur and change the fisheries. Glaciers are melting in SGSSI and opening the way to invasive species.	5 years	OT governments, SAERI, European Universities			Horizon 2020
	Activities						
	Promote research in those areas in which the OCTs have a comparative advantage (Southern Atlantic and Antarctic); Centralize climate data and develop of climate change scenarios for the South Atlantic region – this can be very powerful as no other entity has such wide territorial knowledge and experience; Identify needs and set up conditions for adequate climate monitoring; Identify priority policies and strategies in each OCT according to the major foreseen impacts of climate change – namely on marine biological resources and invasive species; Obtain agreements to change the policies and strategies, and mainstream integration of climate change in general development and main sectorial policies.						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Combat IUU fisheries and bird by-catch	Support continued efforts of fisheries management and level requirements throughout Southern Atlantic	BAT and part of SGSSI are within CCAMLR juridiction and contributing to the efforts. SGSSI, Falkland and Tristan da Cunha have well managed fisheries. Saint Helena has achieved MSC certification on its artisanal fisheries. Ascension requires support to organize the sector. Many efforts by the OCTs are being jeopardized by fisheries outside of EEZ and in African and American countries' EEZ.	5 years	OCT governments			EU
	Activities						
	The Falkland Islands, SGSSI and Tristan da Cunha have developed fairly effective enforcement systems in their EEZs, and have successful fisheries. Establish common dialogue and sharing of experiences with Saint Helena and Ascension Island who are in the process of developing fisheries. Take into account the procedures and methods of CCAMLR and SEAFO to establish common procedures for the OCTs. Work with neighbouring countries towards the existence of regional fishery management organisation (RFMO) in the Southwest Atlantic at present. Use the international bodies to put pressure on eradication of bird by-catch due to fisheries.						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Improve waste management	Develop waste management systems within each territory and in the region	Solid waste management is a problem with different characteristics throughout the territories.	5 years				
	Activities						
	Study the best way to support regional initiatives on solid waste. Engage on measures to reduce the marine litter or its impacts on biodiversity and promote regional or global agreements. Marine litter requirements should be part of fisheries licenses, and awareness raising campaigns should also involve international shipping companies. Engage on international agreements for island communities for the trans-boundary shipment of waste to suitable waste management/recycling facilities off island. This is already the special case of Ascension Island, but other OCTs still need a solution. Study the pros and cons (environmental and economic viability) of encouraging and facilitating the landing of oils and the landing of food waste under the MARPOL Convention, and decide accordingly. Oil collection facilities using a tug and barge, or a road tanker for collection for vessels which come alongside, would reduce the problem of oily wastes. Compulsory slop tanks on board vessels would reduce pollution by other materials. Promote cooperation between Saint Helena, Ascension Island and the Falkland Islands who share common waste management problems to devise solutions and share experiences. Share experience and solutions with Tristan da Cunha, i.e. complement national effort to further develop recycling and hazardous waste management facilities, including facilities for bioremediation. Study the several options and strategies for on-island waste valorisation through recycling and waste to energy methods – including cost-efficiency analysis, assessment of human resource capacity, strategic environmental assessment, etc. Promote regional agreements on different waste streams in order to achieve valorisation of waste. Organise a structured business dialogue with the stakeholders (public, private and civil society) and decision makers of each OCT in order to fix realistic plans (ready to be implemented) on different waste streams in order to achieve valorisation of waste, and to manage more efficiently some sorts of hazardous waste. Establish the economic management around solid waste. Examples are import duties on certain classes of goods, application of charges for dumping at the landfill site(s), etc. The policy shall encourage private sector engagement, particularly in recycling or composting activity by means of fiscal incentives, access to funding, etc. Fund the removal of historic waste from SGSSI						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Invasive species	Increase baseline knowledge and act accordingly	The EU supported a South Atlantic Invasive Species Project 2007-2009, including Falkland Islands which has developed a regional strategy up to 2015. Much work has been done in the different OCTs, particularly through small projects, and some success has been attained. There is a need for research and to develop a more integrated strategy or programme.	5 years	OCTs governments Regional			EU, BEST, Life
	Activities						
	Continue collaborative long-term projects to control invasive species, profiting as well from the South Atlantic Research Institute. Involve EU universities and try to mobilize funds for research and development of activities. Perform baseline data collection to identify risks, mitigation and solutions, in particular terrestrial habitat mapping, invertebrate ecology research and marine baseline survey work. This research will also help planning of environmental management and pollution control as well as future climate change actions. Develop biosecurity policy. Work on biosecurity measures applicable to supply vessels to minimise accidental introduction of rodents. Act to control ballast waters from ships. Mobilise funds (through international awareness and fund raising campaigns) for the implementation of operational plans for the eradication of invasive species.						

9 References

South Atlantic region

Organisation	Website address	Remarks
South Atlantic Remote Territories Media Association	http://www.sartma.com	Interesting World and South Atlantic News site
Commission for the Conservation of Antarctic Marine Living Resources	http://www.ccamlr.org/en/compliance/illegal-unreported-and-unregulated-iuu-fishing	

British Antarctic Territory

Documents

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Eriksson, C. et al., 2013, Daily accumulation rates of marine debris on sub-Antarctic island beaches, Marine Pollution Bulletin 66 (2013) 199–208.

Report of the Working Group on Fish Stock Assessment, Hobart, Australia, 8 to 19 October 2012, http://www.ccamlr.org/en/system/files/e-sc-xxxi-a07.pdf

Websites

Organisation	Website address
Gov.uk	https://www.gov.uk/government/world/organisations/british-antarctic-territory https://www.gov.uk/government/case-studies/strategic-projects-funded-by-the-british-antarctic-territory
British Antarctic Survey Natural Environment Research Council	http://www.antarctica.ac.uk/about_antarctica/environment/bas/index.php
Secretariat of the Antarctic Treaty	http://www.ats.aq/e/cep.htm
IUCN	http://www.iucnredlist.org

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Falkland Islands Government Environmental Planning Department	http://www.epd.gov.fk/?page_id=131 http://www.epd.gov.fk/?page_id=166
New Island Trust	http://www.newislandtrust.com
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Centre for Environment, Fisheries and Aquaculture Science (Cefas)	http://www.cefas.defra.gov.uk/	Executive agency of the United Kingdom government Department for Environment, Food and Rural Affairs (Defra). It carries out a wide range of research, advisory, consultancy, monitoring and training activities for a large number of customers around the world.
International Maritime Organization (IMO)	http://www.imo.org/About/Conventions/ListOfConventions/Pages/The-Torremolinos-International-Convention-for-the-Safety-of-Fishing-Vessels.aspx	
International Association of Antarctica Tour Operators (IAATO)	http://www.iaato.org	
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Central Intelligence Agency (CIA)	https://www.cia.gov/cia/publications/factbook/print/sh.html	
Royal Society for the Protection of Birds (RSPB)	http://www.rspb.org.uk/supporting/campaigns/albatross/problem/threats.aspx	
St Helena government	http://www.sainthelena.gov.sh/	
St Helena government	http://www.sainthelena.gov.sh/	
The Islander (on-line edition) Ascension	http://www.the-islander.org.ac	
Tristan Times Online Newspaper	http://www.tristantimes.com	All kinds of interesting articles

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ANNEX A :

BRITISH ANTARCTIC TERRITORY

ENVIRONMENTAL PROFILE

BRITISH ANTARCTIC TERRITORY

Summary

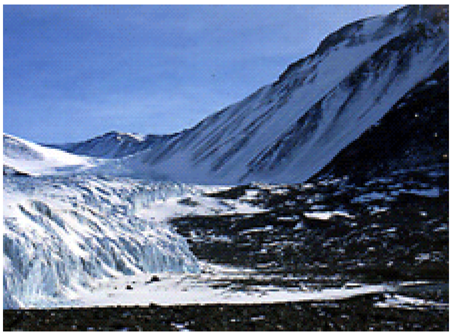
The British Antarctic Territory is the second largest OCT after Greenland. It has no permanent population. Much of the legal regime is determined by the parties to the Antarctic Treaty, Article IV of which puts sovereign claims in Antarctica into abeyance. The British Antarctic Territory is governed strictly in line with the environmental management provisions deriving from the Treaty and agreements made within it. The main issues are fishing in the Southern Ocean, including the occasional by-catch of seabirds such as albatrosses, tourism, marine debris and climate change.

1 Background information

The British Antarctic Territory (BAT) is an overseas territory of the UK. The British claim to the British Antarctic Territory is the oldest territorial claim in Antarctica, dating back to 1908. Most of the BAT is counter-claimed by both Chile and Argentina. Seven countries have made territorial claims in Antarctica.

All sovereign claims in Antarctica are held in abeyance by the Antarctic Treaty (adopted 1959, entered into force 1961), which provides an internationally agreed regime for Antarctica. Under Article IV of the Treaty, no acts or activities taking place whilst the Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty. The Treaty sets aside Antarctica as a scientific preserve, establishes freedom of scientific investigation and bans military activity on that continent. Five separate international agreements have been negotiated, which, together with the original Treaty and the associated Measures, Decisions and Resolutions, provide the framework governing all activities in Antarctica. They are known as the Antarctic Treaty System. By March 2012, 50 States had become Parties to the Antarctic Treaty System.

The UK's has had a continuous presence in British Antarctic Territory dating back to 1943 with the establishment of the wartime 'Operation Tabarin', which provided reconnaissance and meteorological information in the South Atlantic. This year-round presence was taken over at the end of the war by the Falkland Islands Dependencies Survey which subsequently became the British Antarctic Survey (BAS) in 1962.



The BAT lies between longitudes 20º and 80º W, south of latitude 60º S and covers some 1,709,400 km². It includes Graham Land, the South Orkney Islands, the South Shetland Islands, the mountainous Antarctic Peninsula (highest point Mount Jackson, 4151 m, in Palmer Land) all adjacent islands, and the land mass extending to the South Pole. The land mass is largely ice-covered; the sea areas adjacent to Antarctica are seasonally frozen. Only 0.7 per cent of the Territory's surface is ice-free. The remainder is covered by a permanent ice sheet of up to five kilometres thick.

Severe low temperatures vary with latitude, elevation, and distance from the ocean. The Antarctic

Peninsula has the most moderate climate; higher temperatures occur in January along the coast and average slightly below freezing.

Antarctica is surrounded by the Southern Ocean. This ocean is clearly delimited by the Antarctic Convergence (or Polar Front), which is where cold Antarctic waters meet warmer waters to the north. The Antarctic Convergence acts as an effective biological barrier, and the Southern Ocean is therefore a largely closed ecosystem.

The BAT has no indigenous population and indeed no permanent residents. The UK's presence in the territory is provided primarily by the British Antarctic Survey (BAS). The BAS maintains a year-round presence in Antarctica at two permanent scientific research stations (Halley and Rothera) and one summer-only station (at Signy in the South Orkney Islands). There are no passenger airports in the BAT and no scheduled shipping services, but two research vessels supply and re-staff the British scientific stations. A Royal Navy ice patrol vessel is deployed for five months per year in the BAT undertaking hydrographic surveying and inspections under the Antarctic Treaty and the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR).

Many other nations (Argentina, Brazil, Bulgaria, Chile, Ecuador, Germany, Republic of Korea, Peru, Poland, Russia, Spain, Ukraine, United States and Uruguay) maintain stations and bases in the BAT, mainly in and around the South Shetland Islands.

The BAT is self-financing. The main sources of revenue are the sale of postage stamps and taxes from over-wintering scientists. However, tourism is increasing. The BAT is the most accessible and most visited sector of the Antarctic and public interest in the continent, attracting approximately 35,000 visitors to the peninsula in 2013/14. The vast majority of this tourism is ship-based. Approximately 50 per cent of tourists to the BAT visit the restored British research station of Port Lockroy which, along with three other former bases, was declared an official historic site under the Antarctic Treaty in 1995. The Environmental Protocol (see below) includes provisions for managing tourism to minimise environmental impact.

Fishing in areas of the Southern Ocean around BAT is managed through CCAMLR. CCAMLR was established in 1982, as part of the Antarctic Treaty System, with the objective of conserving Antarctic marine life. It manages the marine ecosystems of the Antarctic, including the waters around BAT. This management does not exclude fishing as long as it is carried out in a sustainable manner. The commission has 26 members, with a further 11 countries acceding to the convention, and operates on the basis of consensus.

2 Biogeography, endemism and importance for global biodiversity

Vegetation in Antarctica is sparse on land although there are many types of native lichen, moss and algae. No endemic terrestrial species have been reported on the Territory. Humans have introduced a wide range of alien, and in many cases invasive, species to Antarctica and the sub-Antarctic islands. These include microbes, algae, fungi, bryophytes, vascular plants, invertebrates, fish, birds and mammals. These species have come to survive, and in some isolated cases dominate terrestrial, freshwater, and marine habitats.

In the surrounding seas krill, present in large quantities, provide the basis for a rich marine life: whales, seals and large numbers of birds especially petrels and penguins on the islands and coastal areas of the Peninsula.

Fish in Antarctic waters include finfish, such as Patagonian/Antarctic toothfish and icefish, lantern fish, squid and crabs.

Of the seventeen species of penguins existing worldwide, only two (emperor and Adelie) make

Antarctica their true home, although others (chinstrap, gentoo and macaroni) breed on the northern tip of the Antarctic peninsula, where conditions are less harsh. Between them they account for 85 per cent of the region's bird population.

Four species of seals live and breed in the BAT (crabeater seal, Weddell seal, leopard seal, and fur seal). Much larger numbers of seals are found in the Antarctic compared to the Arctic which reflects the much greater abundance of food in the Southern Ocean.

Fourteen species of cetaceans (whales, dolphins and porpoises) are found in Antarctica. Of these, twelve are whales. There are two groups, the baleen[1] whales and the toothed whales. Six species of baleen whales are found in Antarctica, including the huge blue whale (grows up to 24 metres and can weigh 84 tonnes). Other baleen species are the fin, southern right whale, sei, minke and humpback. Four species of toothed whales are found in Antarctica: southern bottlenose whale, the orca whale and the southern fourtooth and whale sperm whale. Whales feed on fish and squid with orcas also taking penguins and seals. The whales do not live in Antarctica all year-round. They are found there in the summer, feeding on krill and other marine resources and in the autumn head north into the warmer waters of the tropics. There they give birth before migrating back to Antarctic waters. After depletion of several whale species during the 20th century[2], a complete ban on commercial whaling came into effect in 1986 and a Southern Ocean Whale Sanctuary was declared by the International Whaling Commission in May 1994. The sanctuary extends from Antarctica to 40°S, and about 90 per cent of the world's whales migrate through in this region.

3 MAIN ENVIRONMENTAL CHALLENGES

3.1 OVERVIEW

The terrestrial environment in the BAT is not subject to great anthropogenic pressure given the small number of people who enter the territory, and the fact that they are mostly working in government-funded research activities. There could be a waste issue in the future when the installations and buildings on the territory reach the end of their life and have to be replaced or removed, although it is a requirement under the Environmental Protocol to the Antarctic Treaty that all activities in the Antarctic Treaty area shall be planned and conducted on the basis of information sufficient to allow prior assessments of, and informed judgments about, their possible impacts on the Antarctic environment. Furthermore, Annex III to the Environmental Protocol contains specific provisions as to the storage, disposal and removal of waste from the Antarctic Treaty area including a requirement that past and present waste disposal sites on land and abandoned work sites of Antarctic activities shall be cleaned up by the generator of such wastes and the user of such sites.

3.2 MAIN CHALLENGES

The main environmental challenges faced by BAT largely remain the same as those in the 2006-07 Environmental Profiles and their significance is provided in the table below. Some challenges have been addressed but without changes in the relative significance.

1 Baleen is a huge hairy-edged plate in the whale's mouth which acts as a sieve. The whale sieves out krill, small fish and crustaceans.
2 Blue, fin and sei whales are still endangered in the IUCN red list (http://www.iucnredlist.org)

Issues	Situation in 2006-07	Current Situation
Climate Change	Moderate	Moderate
Unregulated fishing and seabird by-catch	Moderate	Moderate (IUU), (seabird by-catch)
Marine Debris	Moderate	Moderate
Pressures on Antarctic system due to increased tourism	Need attention	Need attention

New emerging issues comprise invasive species, waste and human activities outside of the bases.

The main environmental issues are therefore those that arise from activities in the Antarctic and Southern Oceans and global issues. These issues are as follows:

Challenge 1 - Climate change - Moderate

Antarctica is the world's largest repository of ice. The ice sheet on Antarctica is about 25 million km^3 in volume (grounded ice only), equivalent to a rise in sea-level, if it were to melt completely, of 60 metres. Besides, the Weddell Sea is one of the important feeders of the thermohaline global ocean circulation, and recent studies[3] suggest that there is less production of Antarctic Bottom Waters, a massive current of cold, salty and dense water that flows 2,000 meters under the ocean's surface from near the Antarctic coast toward the equator. This is cause for concern, as the current is believed to take up heat and carbon from the atmosphere[4] and its decrease makes a positive feedback loop for climate change. Thermohaline circulation is the climate regulator worldwide and changes in its characteristics can have effects on the heat distribution around the globe generating a cascade of phenomena. The impact of climate change on the region is therefore of global as well as local interest.

Changes to date

Analysis of cross-sections of polar ice indicate that temperature change has been ongoing for centuries in Antarctica. There was a cooling period in the late 1700s and 1800s and a warming over the 19th century. A 2013 IPCC report[5], concluded that it is very likely that the annual mean Antarctic sea ice extent increased at a rate in the range of 1.2 to 1.8% per decade (range of 0.13 to 0.20 million km^2 per decade) between 1979 and 2012. There is high confidence that there are strong regional differences in this annual rate, with extent increasing in some regions and decreasing in others.

Brine released during the sea-ice formation process produces a reservoir of cold, salty waters at the surface of the Weddell Sea. Because this situation is not stable, the heavy surface waters mix with the warmer, lighter waters underneath in a process called open-sea convection. However, examining 20,000 data points, researchers[6] showed that the Southern Ocean surface has freshened during the last 60 years. This is due to observed increased precipitation around the Antarctic continent. As fresh water is more buoyant than saltwater, it does not sink through the layers of the ocean as saltier water does. Besides, the researchers also found that vertical gradients of salinity and density have increased in the Southern Ocean, suggesting that mixing has been reduced. This is consistent with the increase of sea ice cover and the foreseen increase of temperature at depth in the Southern Ocean. Overall, it means that as the convective process reduces, the amount of new, anthropogenic carbon and heat being taken out of the atmosphere is also reduced, which in turn fuels climate change.

Global sea level rise is also related with phenomena occurring within the territory of BAT. According to IPCC (2013), over the period 1993 to 2010, global mean sea level rise is, with high confidence, consistent with the sum of the observed contributions from ocean thermal expansion due to warming (1.1

3 http://www.sciencedaily.com/releases/2014/03/140321164911.htm
4 The Southern Ocean takes up approximately 60 percent of the anthropogenic heat produced on Earth and 40 to 50 percent of the anthropogenic carbon dioxide.
5 Climate Change 2013: The Physical Science Basis – IPCC (http://www.ipcc.ch/)
6 http://www.upenn.edu/pennnews/news/deep-ocean-current-may-slow-due-climate-change-penn-research-finds

[0.8 to 1.4] mm/yr), from changes in glaciers (0.76 [0.39 to 1.13] mm/yr), land water storage (0.38 [0.26 to 0.49] mm/yr, Greenland ice sheet (0.33 [0.25 to 0.41] mm/yr, and Antarctic ice sheet (0.27 [0.16 to 0.38] mm/yr. The sum of these contributions is 2.8 [2.3 to 3.4] mm/yr. The average rate of ice loss from the Antarctic ice sheet has likely increased from 30 [–37 to 97] Gt/yr over the period 1992–2001 to 147 [72 to 221] Gt/yr over the period 2002 to 2011. There is very high confidence that these losses are mainly from the northern Antarctic Peninsula and the Amundsen Sea sector of West Antarctica.[7] This means that the consistent regional rate of warming in the Antarctic Peninsula, which is more than twice the average for other Antarctic stations, is a large contributor to 10% of global sea level rise. The limited impact is due to the fact that a large proportion of ice shelves were floating, so their melting does not directly add to sea level.

The scenario involving the collapse of the West Antarctic ice sheet is now considered to be of lower probability than first thought. Even with warming, local temperatures are so low that small changes in temperature do not lead to melting. There is also little seasonal variation, and only a few limited areas exhibit summer melting. Nevertheless, there have been a number of spectacular collapses of ice-shelves[8] on the Peninsula, related to a southerly migration of the January 0°C isotherm resulting from regional warming. As the Antarctic Peninsula is steep and rugged, there is no evidence that removal of ice shelves will cause melting of the glaciers that fed them to accelerate and add to sea-level rise[9]. Terrestrial ecosystems generally will be unaffected by ice-shelf retreat. Most polar benthic organisms, especially in the Antarctic, grow extremely slowly, so colonization of exposed seabed will be slow. Ice-shelf retreat does however highlight the issue of climate change, and can have an important impact on public opinion.

Overall the Antarctic and the Southern Ocean are likely to respond relatively slowly to climate change, so there will be less impact in this region compared with elsewhere by 2100. Nevertheless, climate change in the Antarctic will initiate processes that could last for millennia — long after greenhouse emissions have stabilized — as these changes might cause irreversible impacts on ocean global circulation, as well as sea-level rise. Changes in temperatures and salinity will have effect on Antarctic organisms, some of which are crucial in the food chain. Although research is ongoing, the large complexity of intertwined phenomena and their global importance require continued (if not increased) research efforts.

Stratospheric ozone depletion

In 1998, NASA satellite data showed that the Antarctic ozone hole was the largest on record, covering 27 million km^2; researchers in 1997 found that increased ultraviolet light passing through the hole damages the DNA of icefish, an Antarctic fish lacking haemoglobin; ozone depletion earlier was shown to harm one-celled Antarctic marine plants. Changes in organisms at the bottom of the Antarctic marine food chain can have major knock-on effects up the chain and therefore on all marine life. In 2006 the ozone hole reached again 27 million km^2, decreasing to 21 million km^2 in 2013[10].

Challenge 2 - Unregulated fishing and seabird by-catch - Moderate/low

Due to the high monetary value of the species caught in the CCAMLR area illegal unreported and unregulated (IUU) fishing has historically been a problem. For example, in the 1990s IUU fishing for toothfish in the CCAMLR areas was estimated to be six times the annual catch by authorised fishing vessels[11]. A high incidence of IUU fishing has had a detrimental effect not only on toothfish stocks, but also on populations of sea birds which may be caught inadvertently in such fishing operations. CCAMLR now believes that the level of IUU fishing has decreased but combatting it still remains a top priority, as it has the potential to seriously undermine CCAMLR's conservation objectives. CCAMLR has introduced a

7 Climate Change 2013: The Physical Science Basis – IPCC (http://www.ipcc.ch/)
8 An ice-shelf is a mass of ice and snow which has slid down from the land into the sea and which, while still hinged to the land, floats in the sea. Ice-shelves are found around much of the coast of Antarctica and account for some 10% of the surface area of the continent.
9 Vaughan, 1993
10 http://ozonewatch.gsfc.nasa.gov/meteorology/annual_data.html
11 http://www.ccamlr.org/en/compliance/illegal-unreported-and-unregulated-iuu-fishing, accessed 18/03/2014

number of measures to do this. Vessels fishing in the area are subject to at-sea and port vessel inspections and the continuous monitoring of vessels position in the Convention Area using automated satellite-linked monitoring systems (VMS) is required. Flag States are required to transmit real-time vessel position information to the centralised VMS database located at the CCAMLR Headquarters. All vessels fishing in the area also have a CCAMLR designated international observer on board who checks the vessels compliance with CCAMLR conservation measures. Toothfish, as the highest value species in the area, is the most targeted by IUU fishing. To combat this additional threat, CCAMLR has instituted a Catch Documentation Scheme to track the landing and trade of all toothfish caught inside of outside of the convention area. Sightings of IUU fishing by Member States or their vessels are also reported and CCAMLR maintains a list of all vessels known to participate in IUU fishing to enable their activity to be tracked. There have been no sightings of IUU fishing occurring in the CCAMLR sub-areas around the BAT since CCAMLR records began[12].

There have been major reductions in the populations of albatrosses and petrels in the Southern Ocean in the last 20 years[13]. Trawl and longline fisheries are believed to be the major cause of this mortality. Experience has shown that in relatively intensively policed and managed fisheries such as in the Falkland Islands or South Georgia & the South Sandwich Islands, seabird by-catch can be reduced to almost nil by adoption of appropriate measures. CCAMLR has made efforts to ensure that seabird by-catch is reduced. This includes specific conservation measures outlining bird scaring measures to be adopted by all vessels, prescribed weights to ensure nets and lines sink quickly and offal discharge on the opposite side of hauling for longlines. Vessels must also set longlines at night to minimise bird interaction. All vessels also have an observer on board who checks compliance against the conservation measures. CCAMLR has also published and distributed an educational book for fishermen which promotes practical ways in which longline fishers can reduce incidental catches of seabirds in bottom longline operations. These efforts have led to a low level of bird mortality in the licensed CCAMLR fisheries, for example only one bird was killed in the krill fishery around the South Shetland Islands during the 2011/12 season.[14]

Challenge 3 - Pressures on Antarctic system due to tourism - Moderate

Tourism to Antarctica has been rising in recent years, and much of this tourism is to the BAT territory. A total of 34,354 tourists visited Antarctica during the 2012/13 season. Nearly all of them were passengers on commercial ships and yachts that make trips during the summer. Most tourist trips last approximately two weeks.

While most of this tourism has been ship-based, there could be increasing pressures to extend the experience onshore. In recent years there has also been a noticeable diversification of tourist activities taking place within the continent. The future challenges that tourism will pose need to be anticipated and planned for, with clear criteria and allocation of responsibilities.

Challenge 4 - Marine debris - Moderate

Debris can be washed up onto the shores of the islands and mainland of the territory. This comes from vessels at sea which dump their waste and from fishing tackle lost at sea. This waste can adversely affect marine life.

CCAMLR has adopted and implemented measures to monitor marine debris and to mitigate its impact on marine biota in the Convention Area. A set of standard forms, methods and instructions has been developed for the collection and submission of data from these monitoring programs. CCAMLR members monitor beached marine debris at several locations, and long-term monitoring programs have been

12 http://www.ccamlr.org/en/compliance/iuu-sighting-reports, accessed 18/03/2014
13 Christophe Barbraud et al., 2012, Effects of climate change and fisheries by-catch on Southern Ocean seabirds: a review, Marine Ecology Progress Series, ISSN: 1616-1599
14 http://www.ccamlr.org/en/system/files/e-sc-xxxi-a07.pdf, pp.314, accessed 18/03/2014

established by Australia, Brazil, Chile, Norway, South Africa, the UK, Uruguay and the USA.

CCAMLR has also instituted a number of initiatives to educate fishers and fishing vessel operators about pollution from marine debris, its impact on marine animals and about appropriate procedures for avoiding discharge of harmful debris at sea. Since 1989, fishing and fishing research vessels operating in CCAMLR waters have been required to display a marine debris placard which outlines procedures for the handling, storing and discarding of different types of refuse.

4 Environmental policies and institutions

4.1 Constitution

Originally, BAT was administered as a Dependency of the Falkland Islands. In March 1962, the BAT became a British Dependent Territory in its own right. However, the territory continued to be administered from the Falkland Islands until, under the British Antarctic Territory Order, 1989, responsibility for its administration was assumed by a Commissioner appointed by the Foreign Secretary. The Commissioner resides in London, is concurrently Head of the Foreign and Commonwealth Office's Overseas Territories Directorate (OTD) and appoints officers such as the Chief Justice, Senior Magistrate, etc. He has powers to make laws, subject to certain conditions, and the BAT has a comprehensive set of its own laws, and judicial and postal administrations. The Deputy Head of the Polar Regions Department of OTD acts as Administrator. The administrative centre is in London, with the Rothera Research Station (BAS-run) as the main hub in Antarctica.

4.2 Institutional structure

Annual meetings of the Antarctic Treaty and CCAMLR provide a forum for monitoring environmental activities and fishing. CCAMLR has established an Executive Commission and an Advisory Scientific Committee which meet annually at their headquarters in Hobart, Tasmania, Australia. CCAMLR also has a Scientific Committee to provide scientific advice and a Secretariat to provide administrative support. The Convention has a Commission to manage the marine living resources of the area for which it is responsible.

British Antarctic Survey (BAS) carries out scientific research in Antarctica into areas of crucial concern such as global climate change, ozone depletion and atmospheric pollution. BAS also carries out fisheries inspections under the Antarctic Treaty and CCAMLR. During the austral winter, around 40 BAS personnel are present. This figure rises to some 250 in the summer. These stations also act as post offices. The BAS operates five aircraft out of Rothera during the summer. The BAS is funded by the Natural Environment Research Council and in turn by the UK Department of Business, Innovation and Skills.

The United Kingdom Antarctic Heritage Trust (UKAHT) manages the historical base at Port Lockroy and other historic sites on behalf of BAS.

The Government of the BAT typically carry out a formal stakeholder[15] (including NGO, academic institutions, private companies and individuals) meeting each year in addition to ongoing interaction with stakeholders. Those interested in joining this forum or considering an application for BAT funding should contact the BAT Government.

4.3 Strategy and policy

15 A stakeholder list can be found at https://www.gov.uk/government/world/organisations/british-antarctic-territory

The Government of the BAT, in consultation with stakeholders, has developed a five year strategy for the territory which sets out objectives and funding priorities. The headline objectives of the strategy are:

–

4.4 Legal framework

As mentioned above, the BAT has its own statute book. However, the key instrument for environmental protection in the BAT, and indeed throughout Antarctica, is the Antarctic Treaty. The BAT is governed in strict accordance with the UK's environmental obligations arising under the Antarctic Treaty. The main provisions of this Treaty are shown in the box below.

The Antarctic Treaty
• The Antarctic Treaty, signed on 1 December 1959 and entered into force on 23 June 1961, establishes a legal framework for the management of Antarctica. • The objectives of the Antarctic Treaty are to "ensure that Antarctica is used for peaceful purposes, for international cooperation in scientific research, and does not become the scene or object of international discord." • There are currently 50 member nations, 29 consultative and 21 non-consultative; consultative (decision-making) members include the seven nations that claim portions of Antarctica as national territory (claimant nations are - Argentina, Australia, Chile, France, New Zealand, Norway, and the UK; some claims overlap) and 22 non-claimant nations; the USA and Russia have reserved the right to make claims; the US does not recognize the claims of others. • Antarctica is administered through annual meetings of the consultative member nations (the Antarctic Treaty Consultative Meetings). Decisions are made by consensus (not by vote) of all consultative member nations, and are carried out by these member nations (with respect to their own nationals and operations) in accordance with their own national laws. The main provisions and principles are: • to be used for peaceful purposes only; • freedom of scientific investigation and cooperation; • free exchange of information and personnel; • neither recognises nor disputes existing territorial claims; no new claims shall be asserted while the treaty is in force; • no nuclear explosions or disposal of nuclear waste; • Antarctica includes all land and ice shelves south of 60°S and reserves high seas rights; • free access, including aerial observation, to treaty-state observers to all stations, installations, and equipment; • Member States have jurisdiction over their observers and scientists; • Treaty states will discourage activities by any country in Antarctica that are contrary to the treaty.

Agreements ratified by members include:

Agreement	Remarks
Convention for the Conservation of Antarctic Seals, 1972 (CCAS)	The objective of CCAS is to "promote and achieve the protection, scientific study and rational use of Antarctic seals, and to maintain a satisfactory balance within the ecological system of the Antarctic." The CCAS entered into force in 1978. The Convention contains comprehensive measures to regulate any taking of seals, including specifying permissible catch levels, protected species, and the opening and closure of sealing seasons and zones. Six Sealing Zones and three Seal Reserves have been established under CCAS. The Convention is subject to regular review and has been used as a conservation, rather than resource utilisation, instrument.
Convention on the Conservation of Antarctic Marine Living Resources, 1980 (CCAMLR)	Provides a legal framework for the management of fisheries south of the Antarctic Convergence. Management follows an 'ecosystem' approach. This means that account is taken not only of the impact of fisheries on the target species, but also on other species in the food chain: its predators and prey. For example, while krill harvesting is regulated and monitored directly, CCAMLR also endeavours to monitor the effect which harvesting may exert on species that eat krill or which are themselves eaten by krill predators.
Protocol on Environmental Protection, 1991	Entered into force 14 January 1998. Parties to the Protocol are committed to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems. The Protocol also designates Antarctica as a natural reserve, devoted to peace and science. The Protocol has six annexes, five of which are in force: Environmental Impact Assessment Conservation of Antarctic Fauna and Flora include prohibitions on the killing, wounding, capturing or molesting of any native mammal or native bird except in accordance with a permit; and regulations on the importation of non-indigenous species, parasites, and diseases. Permits may be issued only by persons authorised by a participating Government. Certain species can be designated 'Specially Protected Species'. Waste Disposal and Waste Management Prevention of Marine Pollution Annex V Area Protection and Management, which came into force in 2002 Liability arising from environmental emergencies, which will only come into force once approved by all consultative parties (the UK ratified Annex VI in its Antarctic Act 2013 meaning it is now up to date with all its obligations arising under the Treaty).

In addition to the legal instruments and measures of the Antarctic Treaty System, activities in Antarctica are also subject to a variety of legal obligations that stem from treaties that are more broadly applicable. The BAT participates in the following Multilateral Environmental Agreements:

MEA	Remarks
The Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA)	Not ratified. This Convention has not come into force yet, and is largely superseded by the Environmental Protection Protocol.
CMS - Agreement on the Conservation of Albatrosses and Petrels (ACAP)	Extended to BAT in April 2004
Basel Convention	Extended to BAT in February 1994

The obligations of the Protocol on Environmental Protection 1991 have been implemented in British law by means of the Antarctic Act 1994, which entered into force in January 1998. The purview of this law is not restricted to the British sector of the continent, but applies to all of Antarctica (effectively all land and sea south of 60°C), but only to British nationals, expeditions, vessels and aircraft (in keeping with the spirit of the Treaty). The Antarctic Act 1994 provides a permitting regime for all activities in the Territory by UK nationals. This legislation also covers environmental monitoring and impact assessment, waste management, oil spills and protected areas and species. The Antarctic Act 1994 is backed up a set of Antarctic regulations from 1995 to 2009, which have implemented subsequent decisions and measures from the ATCM into UK law.

In 2013, the Antarctic Act 2013 implemented into UK law the provisions of Annex VI to the Protocol on Environmental Protection, regarding liability arising from environmental emergencies. The UK has now implemented all its obligations arising under the Antarctic Treaty System. The Antarctic Act 2013 will, however, only come into force once it has been ratified by all consultative parties to the Treaty.

4.5 Monitoring

Both fish stocks and fishing activity are closely monitored by CCAMLR. Catch and effort data, along with biologically related data, are reported in quasi real-time at 5-day, 10-day or monthly intervals to the Secretariat on an individual fishery basis.

Two sites, Seal Islands and Cape Shirreff, have been designated as CCAMLR Eco-system Monitoring Programme sites under CCAMLR Conservation Measures.

4.6 Enforcement

The vast size (approximately 35 million km^2) and inhospitable conditions of the Southern Ocean make it extremely difficult for Member States to enforce or police CCAMLR measures. CCAMLR has a Standing Committee on Implementation and Compliance (SCIC), a subsidiary body to the Commission that meets annually to review the operation of conservation measures and compliance systems and to advise the Commission on their refinement and implementation. CCAMLR adopted in 2012 a conservation measure to support the implementation of a Compliance Evaluation Procedure for all Members. This allows for the detailed scrutiny of fishing practices of all fishing vessels, allowing for the identification of any practice counter to the requirements of the CCAMLR conservation measures. Members States may then discuss remedial measures or sanctions, as appropriate.

CCAMLR conservation measures include compliance systems and tools. Members implement compliance systems that include: vessel licensing, monitoring of vessel movements, monitoring of vessel transshipments, the System of Inspection, the Vessel Monitoring System, and the Catch Documentation Scheme. CCAMLR has adopted additional conservation measures to specifically address the threat of IUU fishing. These conservation measures include the establishment of the Non-Contracting Party IUU vessel list and the Contracting Party IUU vessel list and obligations in respect of the control of nationals from CCAMLR Member countries.

4.7 Funding for the environment

The preservation of the Antarctic environment is one of the main objectives of the administration, and much of its expenditure in the territory is for environmental research and management. In 2013/14, the BAT funded environment related projects in the territory to the sum of £ 45,580.

In line with its 5-year strategy, the BAT funds a number of projects each year across the following four priority areas:

1. Environmental protection and minimising human impacts;
2. Education and outreach;
3. Heritage;
4. Governance and promoting UK sovereignty.

ANNEX B :

FALKLAND ISLANDS

ENVIRONMENTAL PROFILE

THE FALKLAND ISLANDS

SUMMARY

The Falkland Islands are a remote archipelago of low and sparsely-populated islands in the South Atlantic lying 500 km off the coast of South America, just north of the Antarctic convergence. It has a population of 2500 persons and an airfield with 250 – 300 persons. Falkland Islands have a thriving economy based on fishing, tourism and agriculture. Fisheries management has been successful in reducing impacts on biodiversity, particularly on stock conservation and on sea birds. Falkland Islands is assuming importance in the South Atlantic region due to its collaboration with other OCTs regarding environment. Bird population has world-wide importance and there is also a significant number of endemic invertebrates and plants. The main environmental issues in the Falkland Islands derive from (a) their importance as a breeding ground for marine birds, particularly albatrosses, petrels and penguins, (b) waste management and (c) the likely future development and extraction of hydrocarbon resources offshore and possibly also onshore.

1 BACKGROUND INFORMATION

Name of territory	Falkland Islands
Region	South Atlantic Ocean
Land area	12,200 km^2
Exclusive economic zone	550,872 km^2
Population	2,543 + 278 at Mount Pleasant Airfield (2012[1])
GDP/capita	€ 39,200 (2012)
Literacy rate	100%; Secondary education (Females: 35.8% / Males: 27.2%); tertiary education (Females: 20.3% / Males: 21.2%
Unemployment rate	1% (2012 census)
% below poverty line	n.a.

The Falkland Islands lie in the South Atlantic about 500 km off the coast of South America and 1600 km from Antarctica. The archipelago comprises two main islands, East and West Falkland, and about 750 smaller islands and islets. The islands are composed of sedimentary rocks: the landscape is generally rugged and hilly, with the highest peaks being Mount Adam (700 m) on West Falkland and Mount Usborne (705 m) on East Falkland. The coastline of the two main islands is deeply indented. Most of the uplands are comparatively bare, comprising eroded peat, scree and stone runs ('rivers' of angular quartzite boulders). There are many wetland sites. The capital city is Stanley.

The islands have a cold, marine climate. They are subject to strong westerly winds particularly in spring. Over the course of a year, the temperature typically varies from 0°C to 15°C and is rarely below -3°C or above 20°C. The *warm season* lasts from December to March with an average daily high temperature above 13°C. The *cold season* lasts from May to September with an average daily high temperature below 6°C. Approximately half of the year, around 180 days experience rainfall and the average annual precipitation is 635 mm, although it is fairly evenly distributed.

The permanent population has been boosted by a temporary British garrison which has been on the island since the Argentine invasion. The British military presence also provides a sizeable economic boost. Falkland's 2012 census found that the population has decreased by 4% since 2006, a feature "entirely attributable to the decrease in the number of civilian contractors at Mount Pleasant Airfield (MPA)". The census shows that 59% of residents consider their national identity to be 'Falkland Islander'. 29% consider themselves British; 9.8% St Helenian, and 5.4% Chilean.

In the past, economic development was hindered by a lack of natural resources, the small size of the

1 Falkland 2012 Census

population, and the remoteness of external markets. Wool was the traditional mainstay of the economy and principal export. Since 1982 the pace of economic development has accelerated. This rapid growth resulted initially from the influx of aid from Britain but more recently from the development of fisheries. Beyond the cost of defence, around 0.177 % of the total UK Defence annual budget, the Falkland Islands do not receive any further financial assistance from the UK. The gross domestic product is currently about £ 100 million annually. Estimated operating expenditure for the 2011/12 financial year is £ 43 million, while it is estimated government revenue for the same period will be £ 46.5 million. The Falkland Islands Government (FIG) reserves currently stand at £200 million. Another large source of income is interest paid on government bank deposits.

Fishing industry currently contributes between 50 and 60% of the total GDP annually, through sale of fisheries licences. Squid usually account for around 75% of annual catches of some 200,000 tonnes, and are destined for markets in Europe and the Far East. In response to concern about the increasing levels of uncontrolled fishing close to the islands, the Falkland Islands Interim Conservation and Management Zone (FICZ) was established in October 1986 and a reform of fisheries licences took place in February 1987. This reduced the number of vessels fishing in FI waters from 600 to around 200. The period 1987–2012 represents the first 25 years of the fisheries regime around the Falkland Islands. Fisheries revenue has averaged around £20 million per annum although more recently revenue has declined to £12-15 million per annum as a result of several very poor illex[2] seasons. Squid stocks can be quite volatile due to their one year life cycle. The remainder of the catches consists of various finfish species including rock cod, hakes, hoki, southern blue whiting, red cod and toothfish. The fishery presents commercial opportunities for Falkland Islands companies to provide support services to the fishing fleets, and to become increasingly involved in the fishery themselves.

According to FIG[3], the emergent tourism sector has seen rapid growth in the last 15 years, with c. 60,000 tourists visiting the islands by cruise ship each year, and a further 1,600 'land-based' tourists arriving by air. The tourism sector is the second largest contributor to the islands economy and contributes about £4m to annual GDP. Agriculture continues to be a major employer (c. 183 employees, 10% of the overall labour force) and contributes to c. £3 million to the annual GDP. Sheep farming makes up to 95% of the islands' agricultural activity and the Department of Agriculture is seeking to increase the profitability of the islands' 90 farms. The largest employer within the islands is the Falkland Islands Government, which employs 485 people (25% of the overall labour force). FIG is responsible for providing sectors and services such as water, postal service, power, etc.

The FIG announced a 200-mile oil exploration zone around the islands in 1993, and early seismic surveys suggest substantial reserves capable of producing 500,000 barrels per day. In 1995 the Falkland Islands Government issued the first licences to explore for hydrocarbons in the waters around the Falkland Islands. The first commercial oil discovery was made in May 2010, making it more likely that the Falkland Islands will have a long-term hydrocarbons industry in the future. Farm-in partners are working towards entering a production phase in 2017. Dedicated deep-water campaigns are also ongoing in other locations as the south and east of the Falkland Islands, with 2 wells apiece drilled. This campaign has seen one gas condensate discovery and one gas discovery, although further exploration work will be required over the coming years to determine the nature of the finds. It is envisaged that production and processing infrastructure will be based offshore. This will not only reduce the onshore environmental impact on the Islands, but will also ensure that the socio-economic impact will not prove overwhelming for the existing infrastructure. FIG plans to prepare the Falkland Islands to a production phase take off which includes reviewing not only the current level of infrastructure and service provision, but also the relevant legislation to ensure that it conforms to international best practice. However, Argentina continues to strongly oppose any drilling in waters around the islands as part of a longstanding dispute over sovereignty, and introduced new laws allowing for prison sentences of up to 15 years for anyone "involved in the illegal exploration and exploitation of hydrocarbons in the Argentine continental shelf".

2 Squid species Illex argentines.
3 http://www.falklands.gov.fk/self-sufficiency

Besides, technical difficulties for exploitation are pushing it back to the end of the decade[4].

Economic challenges faced by the Falkland Islands include:

- limited technical and professional skills;
- economy with considerable central control;
- restricted private capital for investment;
- limited internal and external transport facilities.

2 Biogeography, endemism and importance for global biodiversity

In international terms, the Falkland Islands are very important for their seabird populations including around one million penguins of five different species. It is also likely that the Falkland Islands are important for marine mammals, but baseline information is lacking.

The Falkland Islands support globally significant numbers of some bird species, as well as two endemic species and 14 sub-species. There is no Falkland Islands national red data list for birds but 9 breeding bird species have a global conservation status (either IUCN red list, or in one of CMS, ACAP, CITES Conventions). There are 21 resident land birds, 18 resident water birds, 22 breeding seabirds, and 18 annual non-breeding migrants. The close proximity of the Falkland Islands to the South American mainland means that many southern South American species are occasionally seen in the Falkland Islands. Species from sub-Antarctic islands, especially South Georgia, may also occur in the Falkland Islands.

More than 70% of the world's black-browed albatrosses (globally endangered) and 75% of the southern form of rockhopper penguins (vulnerable) breed in the Falkland Islands. Bird species which nest on the island which are of global conservation concern include the gentoo, magellanic & macaroni penguins, the southern giant and white-chinned petrels. There are two endemic species: the Falkland flightless steamer duck and the Cobb's wren. The striated caracara or "Johnny Rook" is found only on the Falkland Islands and parts of Patagonia; the Falkland Islands holding the majority of the population. The islands also have a significant proportion of the world's population of dolphin gull and ruddy headed goose, both of which are range restricted species. 22 Important Bird Areas have been designated covering:

IUCN Conservation Status		
Vulnerable	**Near Threatened**	**Endemic**
Black-browed albatross Cobb's wren Macaroni penguin Southern giant petrel Southern rockhopper penguin White-chinned petrel	Gentoo penguin Magellanic penguin Striated caracara	Cobb's wren Falkland flightless steamer duck

Between 1995 and 2000, the population of black-browed albatrosses is estimated to have fallen by about 18%. It is thought that this was due in large part to long-line fishing and trawling in the Southwest Atlantic, although climatic factors may also have played a role. The Falkland Islands have been at the forefront of mitigation research and the adoption of scaring techniques has significantly reduced by-catch. A recovery in the black-browed albatross population has recently seen it downgraded from endangered to vulnerable.

The Cobb's wren is predated by introduced rats. Islands that have not been infested by rats, or have been cleared, support good populations of this bird. A 14-year rat eradication programme has removed rats from over 60 islands in the Falkland Islands archipelago.

4 http://www.ft.com/cms/s/0/fbcb6ab4-7eab-11e3-8642-00144feabdc0.html#axzz2xGBCW6ug

There is no Falkland Islands national red data list of marine mammals, though 11 of the 24 cetacean species seen in the Falkland Islands are categorised as globally threatened by the IUCN, including three species categorised as endangered: blue, fin and sei whales. Ten species are listed under the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and 16 species are CITES listed species, such that trade/export must be regulated by FIG. There is insufficient data available for most species of marine mammal in the Falkland Islands, and there is more specific data for pinniped species (seals and sea lions) compared to cetaceans (whales and dolphins). Information on foraging and breeding areas, seasonal distribution and abundance and diet is particularly scarce. Off the 24 species that occur in Falkland Islands waters only two or three species live in the waters of the Falkland Islands for their entire life. As many whale species sighted in the waters of the Falkland Islands are passing through on their migration routes, it is difficult to decide which species should be regarded as constituting the cetacean fauna of the Falkland Islands. It is suggested that a significant proportion of the world's populations of Peale's dolphin and Commerson's dolphins may exist in the Falkland Islands.[5]

Three species of pinniped breed on the islands, southern elephant seal, southern sea lion and South American fur seal. Additionally leopard seals are often seen, especially in the winter. At a few remote rocky sites (e.g. Bird Island), there are colonies of up to several thousand South American fur seals.

There are no native tree species on the Falkland Islands. The natural vegetation consists of coastal fringes of tussac grass, dwarf shrub heath and acid grassland. Tussac is the tallest native plant and originally formed stands around the coasts, extending at least 200 m and sometimes 800 m inland, and covering small islands. On the main islands and many of those offshore, the vegetation has been degraded by accidental or agricultural burning and livestock grazing. Tussac has disappeared from large parts of the two main islands and some larger offshore islands. It is being actively replanted.

The vascular plant flora comprises 181 native vascular plant taxa. There are 14 endemic vascular plants some of which are much localised. There are currently 248 introduced vascular plant taxa recognised as naturalised in the Falkland Islands. Twenty three plants on FI were included in the 2003 IUCN red list of threatened species. Populations are being threatened by fire, invasive alien species, over-grazing, erosion and habitat destruction. As regards bryophytes, there are 141 species of mosses recorded plus 20 varieties giving 161 taxa in 57 genera. 21 of these taxa are considered endemic to the Falkland Islands.[6] A total of 131 species of liverwort are listed with four being endemic.[7] Over 337 species of macro- and micro- non lichenised fungi, including ten endemic species, are listed for the Falkland Islands. Survey effort has been limited in effort and extent.[8] Pteridophytes (ferns, clumosses and horsetails) are not well represented in the Falkland Islands. Twenty one species are recorded; none of these are considered endemic or globally rare but six species are nationally uncommon.

Work on terrestrial invertebrates has been limited. Around 300 species have been identified including 12 species of earthworm, 78 species of chelicerids (spiders, harvestmen and mites), 50 species of fly, 12 species of parasitic wasp, 110 species of beetles, 20 species of moth and one butterfly, the Falkland Fritillary, an endemic sub-species. Sixteen spider species are thought to be endemic[9] .

A total of 530 marine species have been confirmed[10] in the intertidal and shallow waters (<20 m). The Falkland Islands marine invertebrate fauna is surprisingly rich and little studied. New species are being recorded regularly and it is likely that there is a high level of endemism.

The Falkland Islands have an extensive seaweed flora with around 140 species recorded and some sites

5 Otley, H, 2012,The composition of the cetacean community in the Falkland (Malvinas) Islands, southwest South Atlantic Ocean, Revista de Biología Marina y Oceanografía, Vol. 47, Nº3: 537-551, December 2012

6 Matteri, 1986

7 Engel JJ. 1990. Falkland Island s hepaticae and anthocerotophyta: a taxonomic and phytogeographic study. Fieldiana Botany 25: 1-209.

8 Watling R. 2000. Report on the fungi of the Falkland Islands. Caledonian Mycological Enterprises; Watling R. 2002. Report on the fungi of the Falkland Islands - 2. Caledonian Mycological Enterprises.

9 Lavery A. 2007. Introduced spiders on the Falkland Islands. A report to Falklands Conservation.

10 Shallow Marine Surveys Group, 2010

exhibiting very high diversity e.g. North Arm with 63 species. A recent survey[11] has rediscovered a 'lost' endemic (*Cladochroa chnoosporiformis*) which had not been recorded since 1921.

Six species of fish are found in freshwater and the brackish water in estuaries and in the lower reaches of rivers in the Falkland Islands. The zebra trout (*Aplochiton zebra*) and Falklands minnow (*Galaxias maculatus*) are native species and widely found in freshwater bodies. The latter is abundant, and there appears to be little reason for serious concern for its survival. By contrast the zebra trout is regarded as seriously threatened. Brown trout, first introduced to the Falkland Islands in the 1940s, have thrived and become abundant

The Falkland Islands have officially designated 19 terrestrial national nature reserves and two Ramsar sites: Sea Lion Island and Bertha's Beach. Eight nature reserves are FIG owned, 10 privately owned and one is owned by Falklands Conservation. Several have management plans while others are currently in preparation. Twenty-two Important Bird Areas and 17 Important Plant Areas have been identified but these sites are not yet designated.

3 MAIN ENVIRONMENTAL CHALLENGES

3.1 OVERVIEW

With their low population density and rugged topography, the FI do not suffer from the severe pressures due to development, and are less vulnerable to climate change than some peers. The major challenge is to conserve the rich wildlife resources, particularly seabirds, which inhabit and breed on the islands and which are exposed to multiple threats. The territory has achieved a lot in terms of building up and policing its fishery, and ensuring that threats posed by fishing to local birdlife are minimised. However, because of their heavy dependence on fishing, the islands must ensure that their fisheries continue to be managed sustainably.

Development of bird-scaring devices and other mitigation measures has drastically reduced accidental mortality of seabirds in Falkland's fishery; with over 90% decrease in mortality recorded. Island-wide census (2010/11) results show increase in populations of all species monitored: gentoo penguins, rockhopper penguins, black-browned albatrosses, southern giant petrels.

Farm settlements take water from nearby springs and creeks, without putting pressure on the resource. However, at some settlements where there are tourist lodges, such as Sea Lion Island, the amount of water taken from the springs/fen habitat may represent a high proportion of the available water during dry periods. Both Stanley and Mount Pleasant complex take water from nearby streams and for both sources the water is filtered and chlorinated. At Mount Pleasant approximately 400,000 m^3 of water is extracted annually from L'Antioja Stream, which feeds into Swan Inlet. In Stanley, water is collected from Moody Brook. There has been an upward trend in annual water consumption from 134,000 m^3 in 1980 to 219,000 in 2002, and despite the population increase usage has remained relatively stable. Moody Brook can support Stanley's current and projected demands for about ten years without the need for restricting usage, except during periods of drought. However, influx of workers is expected to the islands due to economic development such as oil exploration and this can trigger new demand. It is to note that Stanley is highly vulnerable in having only one supply source: in the event of it being polluted, there would be an almost instant loss of supply of potable water. However, there is treated water buffer storage and the government has emergency plans in place to allow other sources to be used short term, which would be sufficient for the current population. FIG has a development plan to extract water from the Murrell River

11 Mystikou, unpublished fieldwork report 2013

below Mt Kent in 2014/15.

There is a sewage treatment plant in operation at Mount Pleasant Complex, although performance can be poor due to a lack of volume. Houses in camp have septic systems or a direct drain to sea. In Stanley up until the late 1990s, the majority wastewater drained directly into Stanley Harbour through 21 outfalls without any treatment or basic filtering. Subsequently, central Stanley has been connected to a sewage system along the waterfront which discharges at Rookery Bay into the open ocean. Currently it is estimated that about 12% of total wastewater enters Stanley Harbour, primarily from the western end of the town. No monitoring is currently performed on a regular basis, though faecal coliform levels were monitored in Stanley Harbour regularly between 1990 and 2004.

Stanley alone produces around 1,000 tonnes of waste per year from household and commercial waste[12]. This waste is collected via the 'wheelie bin' system, taken to a single coastal site, Eliza Cove, where some degree of burning, followed by landfill, takes place. Of this, 39% is biodegradable food and garden waste, a further 12% is paper and card and 27% is glass. Some recycling initiatives have started in 2007, namely with glass imploders to process some 230 tonnes of glass bottles and render them sharp free and ideal for re-use as an aggregate replacement. For a short period aluminium cans were collected and baled before being shipped out together with vehicle batteries.

Since 1996, FIG has been investing in a policy to increase its use of renewable energy supplies, such as windpower, and has developed a renewable energy grant scheme with the Falkland Islands Development Corporation[13]. The Islands have experimented with several forms of renewable energy including hydro-electric and solar power, but wind power has shown to be the most cost-effective. Other forms work well for smaller applications. With funding assistance through FIDC, 85% of farms have 24-hour power from renewable sources, mostly wind power. Since 2007 installation of wind turbines for urban electricity production has started. Since 2010, more than 50% of the electricity consumed (during peak) comes from renewable sources. FIG will continue to examine the potential of energy storage and heat pump technologies to optimise wind power and further reduce the consumption of fossils fuels.

3.2 Main challenges

In 2005, the Environmental Vulnerability Index[14] indicated the Falkland Islands as being *At Risk*, even with significant information gaps as only 60% of topics were covered.

The most pressing issue identified portion of land lower than 50m above sea level, and change in the trophic level since fisheries began. Strong winds and isolation are also considered issues of concern.

The main environmental challenges faced by the Falkland Islands were also identified in the 2006-07 Environmental Profiles and their gravity is provided in the table below. Since then, several issues have been addressed with some results that changed their gravity.

Issues	Situation in 2006-07	Current Situation
Threats to the Falkland Islands' biodiversity	Moderate	Moderate
Unregulated fishing	Moderate	Improved substantially
Possible impacts from future oil industry	Moderate	Moderate
Others: Marine litter, waste disposal, sewage	--	

12 http://www.falklands.gov.fk/assets/223-11P.pdf

13 The Falkland Islands Development Corporation is a quasi-autonomous government-funded body. It essentially acts as the national economic development agency for the Falkland Islands and one of the principal partners delivering the Economic, Rural and Tourism Strategies.

14 http://www.vulnerabilityindex.net/EVI_Country_Profiles.html

New Emerging issues are:

Issues	Current situation
Waste Disposal	Severe
Wastewater treatment	Not a priority for FIG but Attention required

Challenge 1 - Threats to the Falkland Islands' biodiversity - Moderate

The FI are particularly important for their seabird and marine mammal populations, as well as other fauna and flora, and are home to a number of endemic species. The wildlife of the islands, including a number of species of global conservation concern, are being exposed to a range of threats. Some examples are considered below.

Albatrosses and petrels

Populations of a number of species of seabird which nest on the FI, including a number of endangered and vulnerable species, are continuing a long trend decline which has been ongoing for many decades. Falklands Conservation estimates that over the period 1995 to 2000, the populations of black-browed albatrosses was reducing by 4% per year. The main cause of this reduction appears to be longline and trawling activities. Albatross and petrels are attracted to fishing vessels during setting of the longlines to forage on the baited hooks, become hooked or entangled and drown. In relation to trawling, mortality is caused by collision and entanglement with trawl warps, netsonde cables (not permitted or used in the FI fishery) and the net itself as the birds forage in the vessel discharge.

There has been a significant effort in the Falkland Islands to try and halt the decline. National Plans of Action written under FAO guidelines have been adopted by the Falkland Islands Government (FIG) for both the longline and trawl fisheries. The longline vessels have now adopted a range of mitigation measures and carry a dedicated seabird observer. Since 2007, there has been no mortality recorded in the long line fleet, and the fishery has been awarded a Marine Stewardship council certification. The finfish trawl fleet adopted the use of bird scaring lines in 2004. The UK government recently ratified the Agreement on the Conservation of Albatross and Petrels, and funds were made available by the FCO to conduct further census work and formulate management plans for breeding sites. Management plans and advisory guidance to landowners have been drafted for a number of key breeding sites.

But these measures apply only to licensed vessels fishing within the Falkland Islands fisheries. Albatrosses forage over long distances in the South Atlantic, and there are many other fisheries which are not regulated. There is no effective regional fisheries management organisation in the Southwest Atlantic.

Important Species.

The FI are home to the largest global concentration of rockhopper penguins in the world. After a period in which populations have declined, in 2010/11 a population increase was recorded[15].

The endemic Cobb's wren population is spreading and Island surveys (2008-12) show over 100 small islands support breeding populations up from 54 islands in 2006.

Livestock farming

The introduction of sheep, pigs, goats, cattle and horses in the 18th and 19th centuries onto the two main islands and several other islands for husbandry has led to considerable reductions in the abundance of native plants. Grazing has altered the entire Falkland Islands ecosystem since human occupation. Loss of tussac grass cover, changes in the spread of whitegrass and the reduction in many species of native herbs and small flowering plants over the last 200 years are all attributable to agriculture. Recent pasture

15 Bayl , A.M., et al., 2013, Increasing trend in the number of Southern Rockhopper Penguins (Eudyptes c. chrysocome) breeding at the Falkland Islands, Polar Biology, July 2013, Volume 36, Issue 7,

improvement programmes have also impacted the flora both positively and negatively. Practices such as the burning of whitegrass to improve pasture have affected the native vegetation over an increasing area of the islands. Agricultural practices of this kind are not regulated by the environmental impact assessment regulations, although restrictions do apply and burning can only be conducted at certain times in the year. There is also a constant threat of fires, accidental or from lightning strikes, on islands with tussac and/or thick peat cover. Overstocking and burning of natural habitats for grazing has reduced tussac grass (a vital habitat for many species) by 80%. Tussac remains crucial to the survival of many species on the offshore islands. Efforts to replant tussac grass have begun.

Where livestock have been removed on some islands the vegetation is slowly recovering. Landowners, government departments and non-governmental conservation groups are all working towards best environmental practices, having conservation agreements and on-ground works like tussac grass replanting schemes. Dept. of Agriculture promotes holistic grazing with rotational grazing rather than set stocking reducing pressure of plant and passerine bird communities. There is also a Falklands Conservation project aiming at improving understanding on raptor interactions with agriculture and biology of threatened raptor species.

Rats

Rats, mice and cats introduced accidentally or intentionally to the islands as a result of human settlement, are major predators of birds and their eggs, including the Cobb’s wren, and have greatly reduced populations. Supply vessels work within biosecurity measures to minimise accidental introduction of rodents. There are some pest-prevention measures. Cargo vessels use rat guards, and visitors are asked to check for rodents. Rat eradication programmes were successful on 60 islands between the winters of 2001 and 2013.

Brown trout

Brown trout were introduced half a century ago, and are thought to have harmed native Falkland Islands fish populations, particularly the zebra trout. Zebra trout only exist in certain waters where brown trout have not yet established themselves, or in systems where they are physically separated from other water systems (e.g. landlocked). More information is needed about the reasons why brown trout appear to supplant zebra trout, and what measures could be taken to protect the latter.

Patagonian foxes

The presence of Patagonian foxes on four islands, introduced in the 1930s for trading in furs, has a significant negative effect on the resident birds and probably explains the absence of breeding upland geese. Some eradication efforts have been under way since 1997 including the successful eradication of Patagonian Foxes from two islands; Tea Island in 2008 and Staats Island in 2010.

Introduced plants

More than one third of plants growing in the Falkland Islands have been introduced by humans since their arrival. These introduced species all affect the native vegetation to a greater or lesser degree, and many of them have benefited agriculture and rural development. Plants such as European gorse and spear thistle are beginning to take a firm hold in the islands: gorse hedges around settlements are often difficult to control, and thistles are being found in more remote and wild sites. Where possible these species are being controlled. Thistles are very vigorous, and alter the structure of the natural vegetation and reduce the grazing quality of pastures. The insects that control them elsewhere are absent in the Falkland Islands. The prickles get caught in sheep fleeces and make them difficult to handle. There is also evidence that thistles can spread a viral disease that affects sheep's ability to graze (prickly plants such as thistles and gorse puncture the lips and feet during grazing and these puncture points allow entry of a viral pox). Compared with other countries the spread of thistle in the Falkland Islands is relatively limited, but total eradication is likely to be problematic.

Presence of rare and vulnerable species is much better understood with Important Plant Areas (IPA)

assessment made. One new endemic species was discovered and its presence mapped in 2013.

Bugs

Introduction of European earwigs (*Forficula auricularia*) to Stanley has become a major human annoyance. Potential use of biological control is being assessed currently by CABI[16] in UK. Consultation with community will be required.

Challenge 2 - Unregulated fishing - Moderate

The FIG, and therefore the citizens of the islands, are heavily dependent economically on the fisheries within the Falkland Islands EEZ. The islands therefore need to ensure that they are managed well and sustainably. A lot of progress has been made in recent years in assessing fishery resources, setting and reviewing appropriate limits on fishing effort, developing a well regulated and enforced licensing system and virtually eliminating the damage to albatross and petrel populations by adopting and enforcing various mitigation measures and ensuring that almost all longline vessels have observers on board to monitor by-catch.

However, all the main commercial fish involved are migratory, and therefore spend much of their lives outside Falkland Islands' waters. There is no effective regional fisheries management organisation in the Southwest Atlantic, so that fishing in international waters is completely unregulated, and within other national jurisdictions is less well regulated. Joint management on straddling stocks does not exist because of the lack of an RFMO and indeed one major fishery has suffered as a result. The continuing poor political relations between Argentina and the UK are a barrier in this regard.

Challenge 3 - Possible impacts from future oil industry - Moderate

Although commercial oil drilling in Falkland Islands waters has been limited to date, oil has been found in commercial quantities in the Sea Lion field. It is likely that a significant oil industry will develop around the islands in the coming years, with potentially serious impacts on an area of exceptional marine life. Penguins, which cannot fly, are especially vulnerable to oil pollution. While there are many examples worldwide of responsible offshore (and onshore) drilling industry, the Department of Mineral Resources which would regulate the industry is small and lacks experience. However, the Department is supported by the British Geological Survey, which acts as consultant on a fee paying annual basis, and the UK Department of Trade and Industry. It will be important that environmental impact assessments meet modern standards of good practice and are carefully reviewed by independent assessors and by government, and that full consultative procedures are followed. It is also important that the licences are carefully drawn up with appropriate environmental conditions, and that the licence conditions are properly enforced.

Challenge 4 - Waste management - Severe

There is no specific waste legislation within the Falkland Islands, other than that relating to land use planning and public health. The current practices of landfilling without separation or pre-treatment of organic waste are inadequate[17]. Licences are required and issued for the disposal into the sea of by-products from the abattoir, with monitoring being undertaken by the Environmental Planning Department.

The London Convention on Dumping at Sea and Orders in Council under the Environmental Protection Act apply to the Falkland Islands and control dumping and discharge to the sea (they do not affect sewage

16 http://www.cabi.org/
17 www.falklands.gov.fk/assets/223-11P.pdf

discharge). By way of example scrap metal and asbestos may not be dumped at sea nor may sludge from sewage farms or ashes from incineration.

Falkland Islands does also have obligations under MARPOL on wastes from shipping. All vessels operating in Falkland Islands waters must have a waste disposal incinerator on board. There are few reception facilities on the islands for ship generated garbage and oily waste. Refuse, food waste and sewage often tend to be jettisoned into the sea, some of this in contravention of MARPOL. Regulations can only be enforced effectively for vessels bearing the Falkland Islands flag. If a foreign vessel is seen polluting, FIG can only write to the relevant Flag State to inform it. International cruise ships have a waste management policy and an International Oil Pollution Prevention Certificate, which requires a separator for oily wastes. Wider application of these measures would prevent much pollution from shipping.

The Montreal Protocol relating to ozone depleting substances also applies to FI. FI is not signatory of the Basel Convention, so it cannot export waste for disposal to a Convention country without having obtained in advance all necessary permissions from the Convention country, nor export hazardous waste to a non-Convention country unless the government of that country had agreed to receive it. FIG has an "umbrella agreement" relating to the disposal of hazardous waste via facilities in the United Kingdom.

Despite their remoteness, the Falkland Islands have a major problem with marine litter, and measures are needed. Marine litter is thought to have a role in the falling populations of rockhopper penguins, southern elephant seals and southern sea lions, all of which are of vulnerable status. The threats posed include entanglement, ingestion and toxicity, each of which can harm or kill. The main sources of marine garbage in the Falkland Islands are from sewage, fisheries and shipping, although the profile is location-dependent.

4 ENVIRONMENTAL POLICIES AND INSTITUTIONS

The Falkland Islands are an Overseas Territory of the United Kingdom. The constitution provides for a governor who represents and is appointed by the UK crown. The Governor presides over the Executive Council composed of five members, three elected and two ex-officio (the Chief Executive and Financial Secretary). The Attorney General and the Commander of the British Forces in the Falkland Islands attend by invitation. The Legislative Assembly has 8 elected members and two ex-officio members of the Executive Council.

The Governor is obliged to consult the Executive Council in the exercise of his functions except on defence and security issues, where he must consult and follow the advice of the Commander of the British Forces in the Islands, and on foreign affairs issues.

Argentina asserts a claim to sovereignty over the Falkland Islands. The Falkland Islands were invaded and occupied by Argentine military forces in April 1982, but surrendered to a British task force two months later. According to the UN charter, there cannot be negotiation on the sovereignty of the islands unless and until the islanders so wish.

4.1 INSTITUTIONAL STRUCTURE

Most government environmental matters are considered by the Environment Committee, comprising two Councillors and a range of other stakeholders including: the Rural Business Association, Falkland Islands Fishing Companies Association, Falkland Islands Tourist Board, Falklands Conservation, South Atlantic Environmental Research Institute and other conservation-minded persons. Other government departments are also represented, including Agriculture, Fisheries and Public Works. The cross-sectoral nature of the Environment Committee is an important mechanism by which environmental considerations

can be integrated into other policy areas.

There is an Environmental Planning Department comprising five staff including an Environmental Planning Officer (EPO) and an Environmental Officer. The EPO is the lead officer for this Committee and deals with any environmental matters, within government and externally. The EPO also deals with all development in the Territory up to 12 nautical miles out to sea. The Environment Committee's decisions are passed to the Executive Council for final approval. All research permits and scientific requests are handled in this way. The Environmental Officer deals with environmental matters and is progressing the draft Conservation and Biodiversity Plan. A Biosecurity Officer was appointed in 2008.

Water, waste and renewable energies dealt by Public Works.

The Department of Mineral Resources is responsible for overseeing the exploration and extraction of hydrocarbons and other minerals. The department issues exploration licences for seismic and oceanographic surveys or similar, and production licences for general oil exploration. The department overseas compliance of operators with the regulatory framework comprised of health & safety, environmental and fiscal regime. The Department also publishes Petroleum Operations Notices.

Falkland Islands Offshore Hydrocarbons Environmental Forum comprises representatives of the oil industry, environmental organisations and relevant Falkland Islands Government departments. The Forum meets to provide means for structured formal and informal consultation on proposed and ongoing hydrocarbon exploration and production activities that may affect the natural environment in and around the Falkland Islands. Gap Analysis group is active on filling data gaps in order to achieve a strong baseline understanding of areas which will be affected by hydrocarbons development.

The fisheries are managed by the Fisheries Department. The Fisheries Department has a chief scientist, data analyst and three stock assessment scientists. Catch data is collected on a daily basis and passed to the Falkland Islands Government Fisheries Department in Stanley. The fishing effort is controlled by limiting the number of vessels licensed to fish within the zone.

A South Atlantic Fisheries Commission has been set up by Britain and Argentina to explore ways of improving conservation of migratory and straddling stocks, but in recent years (2005) Argentina has removed themselves from the SAFC and attempts to promote resurrect a RFMO have stalled. In recent years both Argentina and the Falkland Islands have closed their respective fisheries for illex earlier than the scheduled end to the season in order to conserve stocks.

The South Atlantic Environmental Research Institute (SAERI) is an academic organisation conducting research in the South Atlantic from the tropics down to Antarctica. SAERI's remit includes the natural and physical sciences. Founded in March 2012, SAERI was born out of Falkland Islands Government's Economic Development Strategy, as a way to build a knowledge economy and enhance cooperation between South Atlantic OCTs. It aims to conduct world class research, teach students, and build capacity within and between the South Atlantic Overseas Territories, and has been quite successful, in partnership with other organizations (namely UK, US and European Universities and Institutes), in being awarded grants. SAERI also receives support from UK government. There is a great deal of interest in conducting research in the South Atlantic because the environment is little studied, pristine (especially with respect to the UK OTs) and offers unique research opportunities. The institute also has a number of project applications pending and in the concept phase with partners locally and overseas. Currently has 11 researchers and 4 PhD students, besides the Director, the Logistics Officer and the Project Manager.

Shallow Marine Survey Group is a non-profit organisation created in 2006 in response to the need to improve understanding the almost pristine and unexploited marine environment surrounding Falkland Islands. It is dedicated to the coordination and assessment of the status of inshore resources around the Falkland Islands. Headed by a core group of biologists and divers and assisted by volunteers from the local community SMSG have been collecting, identifying and photographing marine animals in both the Falkland Islands and other islands of South Atlantic (SGSSI, Ascension).

4.2 ENVIRONMENTAL POLICY

On 26 September 2001, the Falkland Islands, like other UK overseas territories, signed with the UK government an Environment Charter which includes statements of principles and undertakings by both parties on integrating environmental protection into all sectors of policy planning and implementation.

In April 2012, the Falkland Islands Government (FIG) approved a new Islands Plan[18] setting out the ambitions for the Islands over a 5-year period. The Plan is aimed at achieving sustainable economic growth. The Islands Plan lays out eleven themes under which targets for society, the economy and environment in the medium term are laid out. The themes include, but are not limited to: ensuring, in partnership with the United Kingdom, the Islands' right to self-determination and British Sovereignty; providing high quality education and training to support the learning aspirations of the whole community, including those in remote rural locations; building a healthy and fit society; protecting and treasuring the unspoiled nature of the environment through environmentally sustainable development; ensuring a well-housed, well-served, safe community.

Planning matters are the role of the Environmental Planning Department. There are two plans: one for Stanley (Stanley Town Plan) and the Structure Plan (Falkland Islands Structure Plan), adopted in 2004. These plans are very much based on the British Town Planning system. Falkland Islands Structure Plan (2001-16)[19] provides policies and Proposals, covering the following broad topic areas: shaping the built environment; protecting air, land and water; safeguarding our landscape, heritage and biodiversity; and providing effective transport and service infrastructure. These documents are being actively reviewed and revised in 2014.

Falkland Islands Biodiversity Strategy[20] (2008-18) identifies the key environmental assets in the Falkland Islands and the species and habitats most at risk of extinction. It then proposes 45 action tasks that need to be implemented in order to protect the environmental assets. The proposed action tasks are grouped under four themes: theme A - Protecting the general environment; theme B - Protecting priority species and habitats; theme C - Protecting our genetic resources; theme D - Driving the Biodiversity Strategy.

The Biodiversity Strategy provides for the government to review the protected areas system. At present 27 islands/coastal regions have been designated NNRs, covering a total area of about 400 km^2. No marine NNRs have been designated. Falklands Conservation owns 18 islands and associated islets (7.5 km^2), which are nature reserves, and about 45 other islands (65 km^2) are treated as reserves by their owners though they have no official status. In all, some measure of protection for wildlife is given in 476 km^2 or about 4% of the FI. There is no requirement for NNRs to be actively managed. Some privately owned islands have management programmes. There are draft management plans for the two Ramsar sites at Bertha's Beach and Sea Lion Island.

The FIG adopted a 'National Plan of Action – Seabirds', written by Falklands Conservation with funding and technical support from the RSPB. These plans address the issues of incidental seabird mortality in fisheries. The Falkland Islands broke new ground by developing a plan that addresses the problems relating to the trawling and longlining fleets and these documents have been regularly reviewed.

Falkland Islands Government National Oil Spill Contingency Plan 2009. A National Oil Contingency Plan is in place since 1998. The Plan was reviewed in 2009. One of the requirements is that companies exploring oil produce an oil spill contingency plan compliant with the National Contingency Plan.

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18 http://www.falklands.gov.fk/self-sufficiency/the-islands-plan/
19 http://www.epd.gov.fk/?page_id=131
20 http://www.epd.gov.fk/?page_id=40

4.3 LEGAL FRAMEWORK

The Falkland Islands have been included in the ratification of 18 Multilateral Environmental Agreements.[21] These include:

MEA	Remarks
Ramsar Convention	Extended to Falkland Islands in 1991. In 2002 two sites, Bertha's Beach and Sea Lion Island were formally classified as Ramsar sites. A further 18 sites were recently proposed for classification.
Convention on International Trade in Endangered Species (CITES)	Became effective in August 1976. The FI have strict Customs controls on biological exports from the islands. Several requests are received each year for penguin eggs or live specimens for collections and captive breeding programmes, but a moratorium since 2001 has prevented any export of penguins or eggs for breeding purposes.
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	In 2004 the UK Government recently ratified the Agreement on the Conservation of Albatrosses and Petrels (ACAP) on behalf of the FI. Steps have been taken to reduce the level of incidental mortality from fisheries, protect terrestrial breeding sites and to assess the risks by fire, tourism, disturbance, introduced predators and disease. Management plans are being drawn up. Changes in legislation may be needed however. Falklands Conservation ran an OTEP-funded Albatross and Petrel Conservation Programme, which was completed in June 2006. Most of the projects initiated during this programme were completed or are on-going.
London Convention	Became effective in December 1975.
International Convention on the Regulation of Whaling	--
World Heritage Convention	No sites yet designated. FI is interested in having sites designated but no progress made because of ongoing sovereignty disputes.
International Convention on Civil Liability for Oil Pollution Damage (CLC)	The Act, which regulates the responsibilities of ship owners for damage caused by oil pollution from their ships, has not been adopted in the Falkland Islands. However, Parts I and II have been applied by virtue of the Falkland Islands Merchant Shipping (Registration of Ships) Regulations 2001. The Falkland Islands does not have any port state control, as the UK does under the Act.
International Convention for the Prevention of Pollution from Ships (MARPOL).	Current Falkland Islands legislation obliges all Falkland Islands registered vessels to comply with MARPOL 73/78 regulations, with the exception of Annex IV (sewage from ships). It was specifically requested that this annex not be applied, as the Falkland Islands is unable to comply with the legislative requirement for adequate reception facilities (FIG Attorney General's Chambers, personal communication). However, the regulations only apply to Falkland Islands registered ships and foreign flagged vessels operating within the territorial limits (12 nm) of the Falkland Islands.
UNFCC Kyoto Protocol	FIG signed UK ratification to Kyoto Protocol in 2006

Although work was undertaken with legal advisers of the UK Foreign and Commonwealth Office to put appropriate legislation in place in order to enable the Convention on Biological Diversity to be extended to the Falkland Islands, this has not yet happened.

The Falkland Islands has good protection in place for most species. However, there lacks a scientific based list of nature reserves and there is no marine protected areas. Development controls are lacking outside Stanley. Moreover, environmental impact assessments are not currently required for the majority of terrestrial development. Environmental impact assessments are however required for developments in the marine environment, for example hydrocarbon drilling operations. An EIA contains a plan for minimising environmental threats and dealing with adverse environmental impacts.

21 http://jncc.defra.gov.uk/PDF/ot_biodiversity2011_falklandislands.pdf

The legislation most relevant to environmental protection in the FI is indicated in the table below.

Item of legislation	Comments / detail
Planning Ordinance 1991	It introduced a simplified UK system of planning control. The ordinance includes provisions for the preparation of development plans and for the handling of planning applications by the Environmental Planning Officer. The Planning and Building Committee make decisions on all applications and there is a right of appeal for applicants to the Executive Council. The planning control extends up to 12 miles from the coastline, under the Falkland Islands (Territorial Sea) Order 1989.The ordinance contains provisions for the Governor to make regulations for the environmental effects of specified developments to be considered before planning permission is given. No such regulations have yet been produced. However, the Mining Ordinances contain some provision for environmental impact assessments to be carried out for minerals developments.
Oil in Territorial Waters Ordinance (1987)	Controls the discharge of oil and oily mixtures in the territorial (12 nm) waters of the Falkland Islands from factories and during unloading and loading of vessels. It is closely based on the UK Oil in Navigable Waters Act of 1958.
Marine Farming Ordinance 2006	The Marine Farming Ordinance was created in 2006 to allow the licensing of farming of fish, crustaceans and molluscs. The ordinance has been enacted but is not yet in force. Under the ordinance, when making a decision about applications the Governor must consider the benefits to the Falkland Islands that the proposed fish farm will generate and the effects that the activities or infrastructure of the fish farm will have on the marine environment.
Fisheries (Conservation and Management) Ordinance 2005	Makes comprehensive provision for the regulation, conservation and management of fisheries around the Falkland Islands. It also introduces property rights to the fishery in the form of Individual Transferable Quotas which may be specified either in terms of catch or effort. It also integrates a number of international best practices in relation to the conservation of marine resources.
Marine Environment (Protection) Ordinance 1995	Implements London Dumping Convention in Falkland Island Waters. The Deposits in the Sea (Exemptions) Order 1995 exempts certain waste streams, including sewage, domestic waste originating on vessels, drill cuttings and muds.
Marine Mammals Ordinance 1992.	Provides protection to all marine mammals.
The Offshore Minerals Ordinance 1994	Designed to provide protection from impacts of offshore exploration and production of hydrocarbons. Provides notably for liability for damage to the environment, the decommissioning of installations and pipelines and with requirements for environmental impact assessments to accompany applications for licences. The Offshore Petroleum (Licensing) Regulations 1995 were made under section 7 of the Offshore Minerals Ordinance and contain, in Schedule 2, a set of "model clauses" for inclusion in licences.
National Parks Ordinance 1998	Provides public access to areas of natural beauty and cultural heritage. Conservation is not the primary aim of the National Parks Ordinance, but the designation of National Park status allows certain controls to be implemented that may benefit conservation both directly and indirectly.
Conservation of Wildlife and Nature Ordinance 1999	Prohibits the taking of birds (except named gamebirds), eggs or other animals, with some licensed exceptions: Yellow-billed teal and Patagonian crested duck may be captured and killed by authorised persons at any time outside the period 1st July to 31st March, turkey vultures can be shot to protect livestock, it is possible to collect eggs from various bird species for personal consumption, to conduct scientific research on birds and to collect bird specimens for educational purposes. The Ordinance Protects certain animals and plants. Prohibits the introduction of new species. It also provides for the designation of National Nature Reserves both terrestrial and marine (NNRs).
Endangered Species Protection Ordinance 2003	Controls the trade of endangered species in the Falkland Islands.

4.4 Environmental awareness

The processes that are in place for decision-making are transparent and decision-makers are publicly accountable. Environmental impact statements (EIS) are reviewed by government and its advisors, and are also made available to local environmental NGOs. Developers are expected to take account of the findings of any such reviews, and make any changes considered appropriate by government.

Falklands Conservation was established in 1979. It promotes nature conservation in the islands, provides support to external researchers and landowners, undertakes research and surveys and owns 18 offshore island nature reserves, and gives specialist conservation advice to the FIG. An office in the UK seeks out funds worldwide to support project work. Falklands Conservation has a particular interest in seabird research.

The New Island Conservation Trust is an active organisation, which owns and manages New Island. Its main mission is to conserve the island in perpetuity. The Reserve has, amongst other outstanding values, the largest colony of thin-billed prions in the world, numbering around one million pairs. The Reserve has undertaken pioneering work on removing sheep and cattle, allowing a recovery of the vegetation. It has also developed controlled ecotourism, and is a favoured stop for Antarctic cruise ships. Recently, detailed research has been carried out on introduced rodents, satellite-tracking of penguins, skua migration, prion ecology and behaviour and the population dynamics of albatrosses.

There are a number of local and international non-governmental conservation and research organisations including New Island Conservation Trust, the Falkland Islands Trust, Beaver Island Land Care Group, Antarctic Research Trust and Sub-Antarctic Foundation Research.

4.5 Monitoring

There are a variety of "monitoring" systems on the islands. The Department of Agriculture monitors habitats, rainfall, pastures, and livestock effects. Falklands Conservation monitors seabirds. A regular census is conducted at selected seabird colonies and specific monitoring is carried out relating to the Plan of Action - Seabirds. Scientists on New Island monitor invasive species, prion, penguin, albatross populations, etc. An Italian team of scientists monitor elephant seals on Sea Lion Island. Beaver Island Landcare have pursued small island rodent eradications and conduct regular monitoring of small islands to assess the health of passerine bird populations.

The Fisheries Department monitors fish stocks, oceanographic conditions etc. The British Antarctic Survey has also been involved in fish monitoring. Catch data is collected on a daily basis.

Whilst not comprehensive there is some monitoring of pollution beyond 12 miles, and practices for waste handling has been monitored on a sub-sample of fishing vessels. Prosecutions for oil pollution have been limited, but have taken place in some cases.

4.6 Enforcement

The Conservation of Wildlife and Nature Ordinance allows for the prosecution of any violation of this legislation.

Some £ 6 million is spent each year on fisheries protection and research. Additional to limiting the number of vessels licensed to fish within the zone, other restrictions include closed areas and seasons to protect spawning squid and, in the case of finfish, a minimum mesh size is imposed. Catch data is collected from all vessels on a daily basis by 8 fisheries observers on vessels. The observers also monitor all licence conditions including waste and Fisheries Officer make wharf inspections and random at-sea

checks. To protect against poachers, the waters are patrolled by Falkland Islands Government aircraft and an armed fishery protection vessel.

Incidental mortality of seabirds from fishing (longlining, trawling, jigging) has been almost eliminated in the Falkland Islands through a series of measures, implemented through conditions in the fishing licences and voluntary measures. There are still issues with trawlers. Jiggers are not an issue with regards to fishing – some reports of capture and eating seabirds.

5 International cooperation

Externally funded environmental projects over the last five years include biodiversity. Climate change and renewable energy. A non-exhaustive list is provided in the appendix. As in other South Atlantic OCTs, most of these projects are financed by the UK's Darwin Initiative and OTEP. Falkland has also benefited from EU BEST Preparatory Action.

European Union

Community Aid from the 6-8th EDF amounted to € 1.1 million. Under the 9th EDF, € 4.547 million (territorial allocation and MTR) was allocated to the Falkland Islands. The focal sector capacity building in the area of trade development with a view to encourage trade growth and increased value added in the Falkland Islands main production sectors of fisheries, agriculture and tourism. Under the 10th EDF Falkland Islands will receive € 4.13 million to diversify the economy, namely: preparation and facilities for increased tourism; rural development to improve the conditions for increased meat and wool exports; and a clear immigration policy.

From 2006 to 2009 the European Commission funded a regional project "Increasing regional capacity to reduce the impacts of invasive species on the South Atlantic UK overseas territories". Invasive species education materials have been developed. Training has been delivered including for border/quarantine staff. Study visits to learn about aerial eradications and restorations were organized to the Pacific Invasives Initiative. Besides, the project found new populations of the endemic Cobb's wren, supported fox surveys and garden plant surveys, supported work to eradicate rats and foxes from the Falkland Islands.

Most of the environmental research programmes in the Falkland Islands are supported by or undertaken by scientists based in EU countries such as Britain (e.g. through British Antarctic Survey, Sea Mammal Research Unit, RSPB), Portugal and Germany, and also other countries such as USA, Australia and New Zealand. The Falkland Islands rely heavily on the technical support of such institutions.

The South Atlantic Fisheries Commission (SAFC) worked during the period 1990 – 2005. It was a constructive bilateral arrangement between Britain and Argentina, together with Falkland's participation for the management of marine shared and straddling resources. SAFC facilitated the exchange of fisheries data, joint research cruises, joint scientific analysis, and recommended co-ordinated conservation advice to respective governments. It might have provided the stepping-stone to some regional fisheries management organisation, required for instance to manage the large Illex resource. Argentina disengaged from this process in 2005 and consequently it has been impossible to maintain a co-operative approach to fisheries conservation.

6 Conclusions and recommendations

Although remote and sparsely populated, Falkland Islands have a thriving economy based on fishing, tourism and agriculture. Fisheries management has been successful in reducing impacts on biodiversity, particularly on stock conservation and on seabirds. Bird population has world-wide importance and there is also a significant number of endemic invertebrates and plants. Falkland Islands is assuming importance in the South Atlantic region due to its collaboration with other OCTs regarding environment, namely with the establishment of an environmental research centre for the Southern Ocean. The main environmental issues in the Falkland Islands are (a) invasive species, (b) waste management and (c) the likely future development and extraction of hydrocarbon resources offshore and possibly also onshore.

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Sustainable biodiversity management and Invasive Species control	Increase baseline knowledge and act accordingly	The EU supported a South Atlantic Invasive Species Project 2007-2009, including Falkland Islands which has developed a regional strategy up to 2015. Much work has been done in the Falkland Islands, particularly through small projects, and some success has been attained. There is a need for research in some topics and to develop a more integrated strategy or programme.	High Now				
	Activities						
	Continue collaborative long term projects to control invasive species, profiting as well from the South Atlantic Research Institute. Involve EU universities and try to mobilize funds for research and development of activities. Perform baseline data collection to identify risks, mitigation and solutions; In particular Terrestrial habitat mapping, Invertebrate ecology research, Marine baseline survey work. This research will also help planning of environmental management and pollution control as well as future climate change actions. Supply vessels work within biosecurity measures to minimise accidental introduction of rodents. Mobilize funds (through international awareness and fund raising campaigns) for the implementation of operational plans for the eradication of invasive species (Develop biosecurity policy). Extend environmental impact assessments requirements to terrestrial development						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Reduce Hydrocarbon exploration/exploitation impacts	Prepare for hydrocarbon exploitation, ensuring minimal risks	Hydrocarbons Forum established 2012 to allow conversation between oil companies, NGOs and FIG to consider environmental impacts of oil development. Gap Analysis group leading on filling data gaps to have strong baseline understanding of areas that will be affected by hydrocarbons development. Protective legislation and procedure are missing. While exploitation is set to start towards the end of the decade, contracts are currently being established.					
	Activities						
	Support and strengthen the work of Gap Analysis group Study the current level of infrastructure and service provision – economic viability study for the preparation of support activities that may be performed by locals Review relevant legislation (not only environmental) to ensure that operations will conform to international best practice Improve environmental impact assessments regulations, so that they meet modern standards of good practice and are carefully reviewed by independent assessors and by government, and with accompanying full consultative procedures Establish It is also important that the licences are carefully drawn up with appropriate environmental conditions, and that the licence conditions are properly enforced Prepare contingency plans, and enshrine the principles of environmental liability.						

<table>
<tr><th>Goal</th><th>Action</th><th>Baseline situation</th><th>Priority and time frame</th><th>Implementing entity(ies)</th><th>€ and HR Needs</th><th>Risks and Assumptions</th><th>Possible € sources</th></tr>
<tr><td rowspan="3">Solid Waste Management</td><td>Reform solid waste management, taking into account international best practice and adequate technology.</td><td>There is a perceived need to improve waste management in the islands. The costs are high due to the scale of operation and distance from potential markets even for materials which are relatively simple to separate out and are marketable elsewhere. There is interest from the private sector to engage in waste management process with recycling and other valorisation.</td><td></td><td></td><td>€ 500,000</td><td></td><td></td></tr>
<tr><td colspan="7">Activities</td></tr>
<tr><td colspan="7">Engage on international agreements for island communities for the transboundary shipment of waste to suitable waste management/recycling facilities off island – particularly the case for lead acid battery fluid, electronic equipment, cfc from refrigerators, oil. Establish standards in waste disposal, and enact legislation to regulate these standards – there is the possibility to adapt EU Directives to the local context.
Develop a Waste Management Development Plan initially dealing with municipal solid waste and primarily focusing on Stanley, the largest producer. On a second phase integrate waste disposal provision in, and from, rural areas (Camp).
Extend and modernize Eliza Cove landfill – establish new standards for reception, separation, and compaction of waste. Create recycling options, such as organic waste/composting, metals and glass adapted to the waste volume.
Establish the economic management around solid waste. Examples are import duties on certain classes of goods, application of charges for dumping at the landfill site(s), other charges. The policy shall encourage private sector engagement, particularly in recycling or composting activity by means of fiscal incentives, access to funding, etc.
Study the pros and cons (environmental and economic viability) of encouraging and facilitating the landing of oils and the landing of food waste under the MARPOL Convention, and decide accordingly. Oil collection facilities using a tug and barge, or a road tanker for collection for vessels which come alongside, would reduce the problem of oily wastes. Compulsory slop tanks on board vessels would reduce pollution by other materials.
Engage on measures to reduce the marine litter or its impacts on biodiversity.</td></tr>
</table>

Appendix 1 - Financed Projects

Area/Topic	**Name**	**Source(s) of Funding**	**Type of funding (loan, grant, co-financing)**
Climate Change Terrestrial Ecosystems of the Falkland Islands – a Climate Change Risk Assessment – EU BEST	Kew Garden, Falkland Islands Trust, Falklands Conservation	EU BEST	Grant
Biodiversity: Falkland Islands shallow marine programme, _Cobb's Wren conservation project, _Falkland Islands native plants programme, _protecting galaxiids from salmonid invasions in Chile and the Falkland Islands, _Conservation of Falkland Islands raptors - reducing conflicts with sheep farming - Biodiversity Action Planning in the Falkland Islands - LOWER PLANTS INVENTORY AND CONSERVATION IN THE FALKLAND ISLANDS – Marine Spatial Planning in the Falkland Islands – Building capacity for habitat restoration in the Falkland Islands – Darwin Project Falkland Islands Protected Areas Strategy: Cooperative Management of Biological Diversity – OTEP Project	Shallow Marine Survey Group FIG/Beaver Island Landcare Falklands Conservation University of Swansea Falklands Conservation Falklands Conservation Falklands Conservation SAERI Falklands Conservation Falklands Conservation	OTEP OTEP Darwin Darwin OTEP Darwin Darwin Darwin Darwin OTEP	Grant
Renewable Energy Sand Bay Wind Farm	FIG	FIG	FIG

ANNEX C :

SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS

ENVIRONMENTAL PROFILE

SOUTH GEORGIA AND SOUTH SANDWICH ISLANDS

SUMMARY

South Georgia and the South Sandwich Islands are two geographically distinct groups of islands in the South Atlantic Ocean. SGSSI is a biodiversity rich OCT which has significant non-use values. The islands are a globally important nesting site for seabirds, many of which are of conservation concern. SGSSI government is composed of 10 members operating from the Falkland Islands. There is no permanent population, although South Georgia houses government representatives (2 persons at any given time), research scientists and some other workers. About 6,000 tourists per year visit South Georgia, and the impact of tourism is currently limited mainly due to the visitors' policies and regulations enacted. The South Sandwich Islands are a more remote volcanically active archipelago of islands with a maritime Antarctic climate and less visited. The territory is nearly self-sufficient in financial terms and has limited capacity to undertake advocacy and fund mobilisation. SGSSI has established the largest sustainable fisheries marine protected area in the world. Some bird populations are declining as a result of fishing activities outside the Economic Exclusive Zone. South Georgia is impacted by habitat destruction by non-native species, and the barriers to further impact are being reduced with glacier retreat due to global warming. Rat and reindeer eradication is ongoing. Another environmental challenge is oil and asbestos waste in abandoned whaling stations which containers/infrastructure are degrading and is becoming a threat.

1 BACKGROUND INFORMATION

Name of Territory	South Georgia and South Sandwich Islands
Region	South Atlantic Ocean
Land area	3 755[1] km^2
Exclusive economic zone[2]	1 449 532 km^2
Population	No permanent inhabitants

South Georgia and the South Sandwich Islands (SGSSI) are two geographically distinct groups of islands in the South Atlantic Ocean. The islands are located in a tectonically active area and lie in the Scotia Sea within the Antarctic Zone of the Antarctic Circumpolar Current. South Georgia is about 350 km south of the Antarctic Convergence, and the South Sandwich Islands lie some 760 km south-east of South Georgia.

Situated 1290 km east-south-east of the Falkland Islands, South Georgia has an area of 3755 km^2, about 175 km long with a width varying between 2 and 40 km. The land is rugged and mountainous, Mount Paget is reaching 2934 m and there are at least 20 peaks exceeding 2000 m. The valleys are filled with glaciers and deep fjords, over half of the island is covered by permanent ice. The main island is surrounded by over 70 smaller islands, islets, stacks and rocks including the outliers Shag Rocks, 250 km to the west, and Clerke Rocks, 75 km to the east. The largest offshore islands are Bird Island and Willis Island off the western part of the main island and Annenkov Island to the South. All islands are uninhabited and infrequently visited with the exception of Bird Island, which is home to a British Antarctic Survey research station. The climate is severe. The weather is extremely variable and temperatures can change up to 10ºC in just 10 minutes. Violent squalls, called williwaws, can be generated by katabatic winds from the mountains reaching in excess of 100 knots. These strong winds can be very dangerous and cause damage to small vessels or field camps.

1 http://jncc.defra.gov.uk/PDF/ot_biodiversity2011_sGeorgia_sSandwich.pdf
2 http://www.seaaroundus.org/eez/239.aspx

The South Sandwich Islands consist of a chain of eleven main islands that bend in an arc ~400 km long. The islands are basaltic and include some active volcanoes and are bounded by a subduction trench, up to 8,265 m deep, on the eastern side. As the South American Plate slips under the Sandwich plate, the occurring plate melting is also responsible for the occurrence of hydrothermal vents. The climate is Antarctic. In the late winter the islands may be surrounded by pack ice.

There is no permanent population on South Georgia and the South Sandwich Islands are completely unpopulated. There is no airfield and so access is only by sea. The prevalent westerly storms and lack of sheltered anchorages make landing on exposed coastlines difficult. The islands are visited by fisheries protection vessels, military vessels, cruise ships, yachts and research vessels during the summer months, with occasional brief landings and some camping by scientific and film expeditions.

There are three centres of human population: King Edward Point, which is the island's administrative centre, and nearby Grytviken as well as Bird Island, where there is a small British Antarctic Survey research station. These are manned year-round by a small number of government officers and scientists. Long-term residents in the employ of the government live at King Edward Point (there are two Government Officers at any one time on the island). With the exception of the Post Office at King Edward Point, there are no public service facilities, nor are there any land-based manufacturing industries. User organisations include the British Antarctic Survey, the South Georgia Heritage Trust, the International Association of Antarctica Tour Operators, an international fishing fleet and the Armed Forces of the United Kingdom. Non-resident British Antarctic Survey research and support personnel are present year-round at the applied fisheries research station at King Edward Point. The British Antarctic Survey scientists at King Edward Point carry out a programme of scientific research under a contract to the Government of South Georgia and the South Sandwich Islands (GSGSSI) to support it in its environmental management and sustainable development of the territory. Visiting scientists engage in a wide range of projects and are typically accommodated in the newly renovated Discovery House, which provides accommodation living space for scientific teams of up to eight people. Scientists at Bird Island are primarily involved in long term monitoring of bird and seal populations.

The GSGSSI has a mandate to generate sufficient income from its activities to fund its costs; by and large this is achieved. Government revenue averaging £ 5 million, is dominated by the sale of fisheries licences (particularly toothfish and krill, respectively 56% and 8% of total revenue in 2012), and landing charges from the 6000 tourists who visit the island each year (13% of total revenue in 2012). Other revenues are generated from the sale of stamps and commemorative coins, and sponsored conservation projects. The high value of toothfish makes it essential that GSGSSI frequently patrols their maritime zone, this is expensive, - costing around 80% of annual toothfish revenue and representing around 50% of the Government's total annual expenditure (2012 figures). Other significant expenses are: upkeep and running of the King Edward Point facilities (about 10% of annual expenditure in 2012), fisheries law implementation and research (8% in 2012), personal emoluments (7.5% in 2012) and Environmental and conservation projects (7% in 2012).

The number of tourists visiting each year has been stable at around 6,000 which forms roughly 12% of the annual income of GSGSSI. After a 2008 decision to limit access to IAATO[3] category 1 & 2 vessels (max 500 passengers), in 2013 a decision was taken to permit IAATO Cruise Only (CR category vessels), carrying up to a maximum of 850 passengers, to return to South Georgia and land passengers at Grytviken.

Currently tourism is exclusively ship based, i.e. visitors make landings but return to their vessel each night. A small number of expedition related visitors do camp ashore. There are 46 designated visitor sites of which landing is permitted at 43. Tourist activities include shore landings and trekking with occasional

3 IAATO - International Association of Antarctica Tour Operators - is a member organization founded in 1991 to advocate, promote and practice safe and environmentally responsible private-sector travel to the Antarctic. Currently it comprises more than 100 respected companies and organizations from Argentina, Australia, Belgium, Canada, Chile, France, Germany, Italy, Japan, Netherlands, New Zealand, Norway, People's Republic of China, Russia, South Africa, Sweden, Switzerland, United Kingdom and United States.

mountaineering, camping, sub-aqua diving, and kayaking excursions. The only land-based tourism facility on the island is the South Georgia Museum at Grytviken. There are no accommodation facilities for tourists on the island, although climbing and scientific expeditions are permitted to camp, and both day and longer-term visitors occasionally occupy the six field huts on the central north coast. Work is underway to renovate the old Nybrakke barracks at Grytviken, which will ultimately act as emergency shelter in the event of a major incident.

Securing funds for significant capital investments is a challenge. Specific projects such as asbestos remediation, rat control and infrastructure improvement have been possible mostly through self-funding, one-off grants or help from charitable groups. The GSGSSI budget is heavily dependent upon the license fee income from the toothfish fishery and there are limited opportunities to improve financial resilience through developing other revenue streams. In recent years revenue from the krill fishery has increased but this cannot be relied upon because of the stochastic nature of krill distribution and abundance. Tourism revenue may be increased either by increasing landing fees or diversifying the range of tourist activities available on the island. However, a meaningful increase in tourism activity would require a further investment in construction of appropriate facilities, asbestos remediation and provision of appropriate emergency facilities. Moreover, any increase in tourism would have to be carefully weighed against the potential wildlife disturbance, biosecurity threat and loss of wilderness value.

An overwhelming component of economic value SGSSI is non-use values. These are difficult to quantify but can very likely be measured in billions €, not single-digit millions[4] (see next section). The occurring charismatic mega fauna (penguins, seals, whales, etc.) and their stunning island back-drop consistently attract media attention and, in this way, have become valued worldwide. Historic ties with heroic age, especially the exploits of Ernest Shackleton, further boost the islands' international recognition and value.

A significant source of SGSSI income comes from the issue of *postage stamps* produced in the UK. A reasonable policy (few sets of stamps are issued each year) along with attractive subject matter makes them popular with stamp collectors.

2 BIOGEOGRAPHY, ENDEMISM AND IMPORTANCE FOR GLOBAL BIODIVERSITY

South Georgia is situated on a biogeographic boundary where many species have their northern or southern boundaries and as a consequence the islands are home to some of the world's most significant breeding populations of some species of marine birds and mammals.

The South Sandwich Islands and surrounding waters host some of the most unique ecosystems within the Southern Ocean including hydrothermal vent communities. Instead of sunlight, vent ecosystems rely on hydrogen sulphide or methane, toxic to most land-based life and some withstand very high localised temperatures (95% of the about 300 species found in vents are new to science).

SGSSI hosts important global populations for a number of species, which include: 95% of the world population of Antarctic fur seals (*Arctocephalus gazella*), 50% of the breeding population of white-chinned petrel (*Procellaria aequinoctialis*), >50% of the breeding populations of southern elephant seals (*Mirounga leonina*) , 45% king penguins (*Aptenodytes patagonicus*) and 40% grey-headed albatross (*Thalassarche chrysostoma*) and significant proportions of the world populations of gentoo penguins (*Pygoscelis papua*), macaroni penguins (*Eudyptes chrysolophus*), black-browed (*Thalassarche melanophiris*), wandering (*Diomedea exulans*) and light-mantled sooty (*Phoebetria palpebrata*) albatross and giant petrels (*Macronectes giganteus*).

Both South Georgia and the South Sandwich Islands, including their islets and stacks and maritime zones

4 Gravestock, P, 2012, An Economic Review of South Georgia and the South Sandwich Islands in A Biophysical, Economic and Legal profile of South Georgia and the South Sandwich Islands, Rogers A.D. et al., Pew Environmental Group

have been classified in their entirety as Important Bird Areas due to the abundant and diverse *seabird* communities. There are an estimated 100 million birds on South Georgia. According to the Birdlife International datazone[5]: a total of 72 migratory bird species[6], 47 seabird species, 23 water bird species, and 16 terrestrial species. The most numerous bird is the Antarctic prion (*Pachyptila desolata)*, circa 22 million pairs. The chinstrap (*Pygoscelis antarctica)* and macaroni penguins (*Eudyptes chrysolophus)* are also abundant, with more than 1.5 and 1 million breeding pairs, respectively. There are four species of penguin (also Adelie and rockhopper but very rare), four species of albatross and 18 species of petrel and related species.

South Georgia is the world's most important breeding site for the endangered grey-headed albatrosses and vulnerable white-chinned petrels, and the third world's most important site for the vulnerable wandering albatross and near-threatened black-browed albatrosses. SGSSI is one of the top three breeding sites globally for king and gentoo penguins.

There are no indigenous terrestrial mammals, reptiles, amphibians or freshwater fish on the territory. Reindeer were introduced to two peninsulas in the early 20th century by Norwegian whaling companies and due to lack of natural predators or human control have subsequently increased in number and cause substantial habitat damage to coastal tussac habitats. Reindeer have now been eradicated from one of the peninsulas and numbers greatly reduced on the other. Rats and mice were introduced accidentally with early whaling and sealing expeditions and subsequently spread too much of the north coast and south-western coast of South Georgia where they substantially reduced the populations of burrowing birds species. A rat eradication project is currently in progress. The terrestrial and freshwater *invertebrate* fauna are limited in terms of numbers and species diversity, and include flies, mites, ticks, springtails, diving beetles, spiders, annelid worms and molluscs. About one-third of the 230 species of arthropod fauna are endemic[7]. There are 70 species of freshwater invertebrate and six species of spider.

Despite a very limited number of *flowering plants*, there is great diversity in *mosses and lichens*, many found nowhere else in the world. There are 25 species of *vascular plant* native to South Georgia, over 50 introduced vascular species, which mostly occur around the old whaling stations, and about 125 species of moss, 80 of liverwort and 150 of lichen.[8] There are no known endemic vascular plant species. There are no trees or shrubs, and only mosses and lichens survive in the inland rock and ice environment. Of the vascular plants, the most important is tussac grass. The South Sandwich Islands are poor in species composition, due to the islands' extreme climate, isolation and volcanic activity. There is only one species of vascular plant, Antarctic hairgrass.

South Georgia has the most particular marine ecosystem in the Southern Ocean and has higher diversity of species than the ocean around many archipelagos including the Galapagos Islands. This area of the ocean presents the highest proportion of endemism in the world, e.g. about 56% of the 112 bryozoa species 46% of the 161 mollusc species, and 24% of the 283 crustacean species are believed to be endemic (though some might exist in unexplored parts of the ocean elsewhere). There is also high octocoral species richness and four endemic algae (one green, two brown and one red). Twelve of the 103 species of algae have been found only in South Georgia and Tierra del Fuego, which lies about 2,150 km to the west, while about 22% of the species also occur in the northern hemisphere.[9] About 50% of the marine species around South Georgia are found in other sub-Antarctic islands at similar or more northerly latitudes, and around mainland South America. The others are confined to Antarctic coastal waters, with a few reaching their northernmost limit at South Georgia, e.g. some species of brown algae.

The waters around South Georgia are amongst the most productive in the Southern Ocean, with large and often long-lasting seasonal phytoplankton blooms in the summer months. Patchy blooms of large

5 www.birdlife.org/datazone/country
6 Although some species might be vagrant
7 http://www.sgisland.gs/download/South%20Georgia%20IBA%20Chapter.pdf
8 Idem
9 Jonh, D., et al., 1994, Observations on the benthic marine algal flora of South Georgia: a floristic and ecological analysis, Bulletin of The Natural History Museum London, 24(2): 101-114

diatoms overlay a more constant community of smaller heterotrophs and autotrophs. This high primary production supports abundant zooplankton including Antarctic krill, which makes up almost half of the zooplankton biomass in South Georgia. Krill forms dense swarms and is a key species in the pelagic food-web of the Southern Ocean linking primary production to the abundant vertebrate predators in short and highly efficient food chains. Krill is primarily a species of the seasonal sea ice zone and South Georgia is close to the northern limit of their distribution. Krill are advected to the South Georgia and South Sandwich Islands region from the seas around the Antarctic Peninsula, and at South Georgia the population is dominated by adult stages, with early larvae rarely seen.

Several seal species breed on the two island groups, and whales are frequently seen offshore. Population of over 4 million Antarctic fur seals and over 100 thousand southern elephant seal occur, and the SGSSI are the most important breeding sites of these species. A small colony of Weddell seals breed in Larsen Harbour, Drygalski fjord. Leopard seals can be seen all year around, particularly in winter. GSGSSI's legislation protects marine mammals within South Georgia's waters and thus it can be viewed as a whale sanctuary. Previously more than 175 thousand whales were harvested over a 60-year period in the 20th century. Some whales are now seen close inshore, in particular large groups of fin whales as well as southern right whales and humpbacks. Pods of sperm and killer whales are seen, interacting with the longline fisheries (they can strip Patagonian toothfish off the long line before it is hauled on deck). The southern bottlenose whale, long finned pilot whales and hourglass dolphins are also infrequent. Sightings of the large blue whales, which were reduced to < 0.3% of their pre-exploitation biomass, remain infrequent. Blue and fin whales are endangered species and sperm whales are vulnerable.

As part of an ongoing programme of sustainable management of the Territory, on February 23rd 2012 the South Georgia and South Sandwich Islands Marine Protected Area (MPA) with an area of 1.07 million km^2 was declared. It lies within the 200 nautical mile Maritime Zone around SGSSI that was declared in 1993 to provide for the management and conservation of fisheries, mineral resources and control of whaling activities. The area of the Maritime Zone to the south of 60ºS latitude is an Antarctic Treaty Area, and therefore is subject to the regime of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). All the SGSSI fisheries, which are all north of 60ºS, are managed within the CCAMLR framework. The SGSSI MPA is a large sustainably managed MPA (IUCN Category VI) designed to ensure the protection and conservation of the region's rich and diverse marine life, whilst allowing sustainable and carefully regulated fisheries. No-take zones (IUCN Category 1) were created around South Georgia, Clerke Rocks, Shag and Black Rocks and the South Sandwich Islands, totalling 20,431 km^2. Further environmental protection within the MPA includes the prohibition of all bottom trawling and a ban on bottom fishing at depths less than 700 m and deeper than 2,250 m, additional benthic closed areas in the depths fished for toothfish, a seasonal closure (November 1st until March 31st) of the Antarctic krill fishery, and a 12 nm pelagic closed area around the South Sandwich Islands. The no-take zones provide refuges for fish, protect the benthos and spawning fish and avoid competition between fisheries and land-based foragers.

GSGSSI are currently working toward implementing a series of terrestrial specially protected areas. As part of this process threats and high-risk areas will be identified and afforded additional protection which will be enshrined in law. Designation of protected areas will require a period of stakeholder consultation and analysis of all available biodiversity data.

3 STATE OF THE ENVIRONMENT

As stated above, SGSSI has no permanent population, but is of great importance to seabirds in the South Atlantic, has a unique marine environment and sustainable and economically important fisheries. The Government's on-going aim is therefore to conserve the wildlife and natural environment in a near pristine state.

Historic human activity has had an adverse influence on South Georgia. In particular, the introduction of alien species and overfishing. The effects of rats are a considerable concern, which is currently being addressed. Many higher *plants* have been introduced, some accidentally with livestock fodder. Introduced flora (such as the dandelion and annual meadow grass) are widespread and in some areas have excluded native flora.

Several measures are being taken to manage the environment. There are site specific visitor management plans at sites which are particularly environmentally sensitive. The plans include specific guidelines regarding how visits should be managed to reduce impact and in some cases manage safety. At highly sensitive landing sites specific controls are in place.[10]

At present almost all waste is removed from the island's bases at King Edward Point and Bird Island, with a very small amount incinerated locally. Approximately 85% of the waste is separated and transported to the UK for recycling with the remaining 15% or so primarily landfilled in the Falkland Islands.

Fishing is now managed sustainably, with apparent recovery of previously exploited stocks. While the fisheries within the maritime zone and in the MPA are now well managed[11], the islands' birdlife is threatened by illegal and unregulated fishing outside SGSSI waters, where measures are generally not taken to minimise seabird by-catch. Predation of seabird chicks and eggs by rats is also a problem on the island.

GSGSSI is considering restricting the use and carriage of heavy fuels in inshore waters around South Georgia and the South Sandwich Islands, following the August 2011 ban imposed by the International Maritime Organisation (IMO) on the use and carriage of heavy fuel oil was introduced to waters around the Antarctic continent (south of 60°S). This effectively excludes vessels that burn or carry any fuel other than marine gas oil or marine diesel oil. Since all cruise ships that visit South Georgia also visit the Antarctic Peninsula, it is likely that in future, no cruise ship visiting South Georgia will be carrying heavy fuel. Some of the larger trawlers burn intermediate fuel oil (IFO).

3.1 MAIN CHALLENGES

For baseline comparison, the 2005 Environmental Vulnerability Index[12] is used. It indicates the SGSS Islands as being *At Risk*, even with significant information gaps as only 40% of topics were covered. The most pressing issue identified is isolation. Weather and climate, changes in sea surface temperature affecting ecosystems, small land area, scattered and portion lower than 50m above sea level; number of migratory and endangered species - all contribute to the classification.

The main environmental challenges faced by the SGSSI were also identified in the 2006-07 Environmental Profiles and their gravity is provided in the table below. Since then, several issues have been addressed with some results that changed their gravity.

10 For example, Prion Island is closed to visitors from the 20th November to the 7th January inclusive, so that birds are not disturbed during the courtship season and disturbance of dense colonies of breeding fur seals on the landing beach are minimised. At all other times visitors must remain on the South Georgia Government funded board walk thus minimising trampling of vegetation and disturbance to birds.

11 The current Marine Stewardship Council (MSC certification of the South Georgia Patagonian toothfish longline fishery will expire in September 2014. The re-assessment process is on-going.

12 http://www.vulnerabilityindex.net/EVI_Country_Profiles.html

Issues	Situation in 2006-07	Current situation
Invasive species	Severe	It is still a problem. Measures such as rat, reindeer and alien flora eradication are ongoing.
Illegal fishing and seabird by-catch	Moderate	Resolved in the territory. However, populations continue to decline for unknown reasons, in part due to high levels of by-catch in fisheries off the coast of South Africa and South America. The lack of international agreement and enforcement of bird by-catch mitigation methods in many fisheries, coupled with a lack of high seas enforcement contribute to hamper a more substantial and widespread progress.
Others: Infrastructure in the islands Bird collision with vessels (bird strike)	Not indicated	Laser inspections of the infrastructures were done, followed by refurbishing of some infrastructure, waste elimination is taking place.

New Emerging issues are:

Issues	Current situation
Climate Change	Moderate
Hazardous Waste	Moderate

A Success Story – Combatting illegal fishing and seabird by-catch

The joint efforts of CCAMLR and the GSSSG – first with fishing license requirements and currently with the MPA have contributed for the decrease of illegal, unregulated and unreported fishing in the EEZ of SGSS. Toothfish and icefish fisheries are Marine Stewardship Council (MSC) certified. The high incidence of illegal, unreported and unregulated (IUU) fishing occurring in the past has had a detrimental effect not only on toothfish stocks, but also on populations of sea birds which may be caught inadvertently in such fishing operations.

Since 1998 the toothfish fishery has been restricted to the winter months (May 1st to Aug 31st to minimize interactions with foraging seabirds during their breeding season. Since 2010 CCAMLR and GSGSSI have permitted a gradual extension to the season, with the season starting five days earlier each year, such that the 2013 season started on April 11th. The season extension has had no effect on seabird by-catch, which remains negligible. In 2004 a minimum depth of 500 m was introduced to protect smaller fish. The minimum depth was increased to 550 m in 2010 and 700 m in 2011. The fishery was conditionally certified by the MSC in 2004, recertified without conditions in 2009, and is due to be recertified again in 2014.

Icefish fishing activity is usually focused on an area to the north-west of South Georgia. The pelagic trawls, with a minimum mesh size of 90 mm, catch little by-catch and so have little impact on non-target species. Seabirds are occasionally killed in the fishery, usually as a consequence of diving through the large meshes to feed on fish stuck in the net. Measures to avoid that are now all required under fishing license conditions. The fishery was conditionally certified as sustainable by the MSC in 2010.

In South Georgia waters the krill fishery has mainly been a winter fishery, typically operating between April and September. The new MPA order introduces a formal seasonal closure, with no krill fishing allowed between November 1st and March 31st. This reduces the risk of competition between the fishery and krill dependent predators, particularly the land-based predators that are constrained in their foraging during the breeding season. By-catch within the krill fishery is, in general, very low. The main by-catch is larval fish, although numbers of these are relatively few. Fur seals have occasionally been caught in the nets of the krill trawlers, but since the requirement for escape panels became mandatory in 2003 there have not been any captures.

A combination of spatial and temporal protection (MPA) with strict fisheries regulations has been achieved. With that preconditioning, a rigorous enforcement will make SGSSI an example of best practice in fisheries management.

Challenge 1 - Invasive species - Severe

Introduced species on the island have affected the balance of the island's eco-systems. Predation on seabirds by rats, overgrazing and degradation of vegetation and soil erosion by reindeer, and the introduction of alien plants and insects are altering the native flora and fauna of large areas of the site.

The greatest threat to the terrestrial environment on South Georgia is the *Rattus norvegicus*. Rats are thought to have been introduced by sealing vessels in the late 1700s, and now occupy virtually the entire north-east coastline and the northern quarter of the south-west coast of the main island, as well as some of the smaller islands. They have had a profound effect on ground burrowing birds. In rat-infested coastal areas, South Georgia Pipits and smaller burrowing petrel species have been reduced significantly and populations of white-chinned petrels and yellow-billed pintails have been reduced. Most species of petrels are confined virtually exclusively to rat-free areas. Glacial retreat as a result of global warming may present additional threats if the ice barriers that currently isolate rat-free areas disappear.

In a small trial in 2000 rats were successfully eradicated from Grass Island. In 2011 the South Georgia Heritage Trust began the first (trial) phase of the island-wide rodent eradication project covering 5218 hectares on three peninsulas (Thatcher, Greene & Mercer). The eradication involved dropping cereal bait pellets laced with brodifacoum, a second generation anti-coagulant poison. Brodifacoum is toxic to all vertebrates and so non-target mortality is an issue. Although designed to be palatable to rodents, pellets are also attractive to other species, resulting in primary poisoning. Predators and scavengers that feed on poisoned rats or other primarily poisoned non-target species will succumb to secondarily poisoning if sufficient toxin is ingested. Initial monitoring has concluded that there were relatively high levels of mortality of the South Georgia pintail and brown skua, with other species such as the snowy sheathbill, kelp gull and giant petrel being affected to a much lesser extent. In March to May 2012, the SGHT conducted Phase Two of the eradication, which targeted the north and west areas. The final phase is planned for 2015.

Reindeer were introduced to the central north coast region and have overgrazed significant areas of tussac grass, greater burnet and various species of lichen; their selective grazing habits have encouraged the spread of introduced meadow-grass, thus reducing habitat for insects and limiting the growth of indigenous flora. The damage to tussac habitat results in substantial erosion and damage to nests of white-chinned petrels. GSGSSI is currently undertaking a two-year programme to eradicate reindeer from the island. At the beginning of 2013 the first phase of the eradication of reindeer from South Georgia took place. Just over 1,900 reindeer were eradicated from the Busen area, and an additional 1,555 reindeer were shot on the Barff Peninsula. Animals were either humanely killed under veterinary supervision, or were shot, depending on the location. About 930 animals were processed and approximately 7,500 kg of meat was recovered. Searches of the Busen area made by foot patrols, and helicopter reconnaissance carried out several months later found no reindeer. The second phase of the eradication is underway on the Barff Peninsula and because of the rugged terrain a ground shooting only methodology is being employed. The project is due to be completed by March 2014.

Planning large-scale eradication work in a location as climatically challenging and remote as South Georgia has been technically complex and the lessons learned in this process can and will be shared with other OCTs who are engaged in their own mammal eradication projects. Despite the efforts, more needs to be done and financial resources are a limiting factor.

Attention is now being turned to invasive plants. This is a much more long-term problem and whilst there is a draft weed management plan in place, it will take many years to have it fully enacted. Surveys and control of invasive plants have been undertaken at King Edward Point and the whaling stations at Grytviken, Ocean Harbour, Husvik, Stromness and Leith. At King Edward Point and Grytviken there have been efforts to control bittercress and procumbent pearlwort and these populations are in decline. Further surveys are required for the completion of the weed management strategy after which priority species will be identified and herbicide control will be on going.

Little is known about the risks associated with non-native marine species and with increasing shipping

traffic and warming oceans, this is a threat that urgently needs full risk assessment and development of mitigation strategy.

Challenge 2 - Hazardous Waste - Moderate

Pollution is a significant threat to the marine environment of South Georgia. Hazardous waste and marine litter is found in the territory in the form of wrecked vessels, discharged oil or fuel, discarded rubbish or fishing gear, or discharged waste or ballast water, as well as asbestos and oil tanks in whaling stations.

The two vessels that wrecked on Cumberland Bay have been removed of oil and fishing gear but continue to gradually breaking up. Material, such as insulation foam is regularly washed up on beaches in the bay. There are occasional incidences of oiled penguins on South Georgia but the source of the oil is difficult to determine. It is possible that it has been released from old wrecks associated with the whaling stations, but could have come from more recent visiting vessels. On land, residues of fuel oil and whale oil can be found in the whaling stations. The exact amount of oil is unknown but SGSSI authorities estimate it to be several hundred cubic meters. As the tanks in which the oil is contained deteriorate, there is an increasing risk that the oil will enter the environment and become a hazard to wildlife. Removal of the oil is challenging because of its viscous, wax like consistency which makes recovery difficult. In addition working within the whaling station environment would require specialist asbestos personal protection equipment.

Disused whaling stations contain high levels of asbestos and unsafe structures that present a danger to both humans and wildlife. Although asbestos has been removed from Grytviken whaling station and structures made safe for public access, the stations at Husvik, Leith, Stromness and Prince Olav remain and continue to rapidly deteriorate in the severe climate of South Georgia. SGSSI estimate that the removal of asbestos in whaling station would cost tens of million pounds which is beyond their capacities and there is a need for a fund mobilization campaign.

There are obviously no significant waste disposal facilities on the islands and there is a reliance on other nations accepting material for re-cycling, treatment or final disposal. A disposal route would need to be established for waste oil and for asbestos.

Marine litter and in particular fishing gear waste poses serious threats to biodiversity. Fur seals are occasionally encountered with packing bands, loops of rope or sections of fishing net around their necks. It is common to find fishing gear around nests of South Georgia's larger breeding birds, mainly in the form of pellets (boluses of undigested material regurgitated spontaneously by wandering albatross chicks shortly before fledging. Birds are also found "foul-hooked" through the legs or beak, probably due to secondary hooking during hauling. Fishing gear is also found associated with grey-headed and black-browed albatross and giant petrels. Although discard of baited hooks is strictly prohibited in the South Georgia long-line fishery, it is not uncommon elsewhere. Similarly, floats from squid jigs are associated with the grey-heads, and this comes from outside the SGSSI MZ. GSGSSI insist that licensed toothfish vessels use uniquely marked hooks and so that any waste gear from these vessels can be quickly identified.

Challenge 3 - Climate Change - Severe

The Southern Ocean is warming faster than the global ocean. A study[13] of a long time series from 1925 to 2006 revealed that a mean increase of ~0.9 °C in January and ~2.3 °C in August was evident in the top 100 m of the water column; warming diminished below 100 m and approached 0 at 200 m. This record also shows that peak summer temperatures now occur approximately 6 days earlier and mean summer air temperatures have warmed from 2.7°C to 3.5°C.

13 Whitehouse, M.J, et al., 2008, Rapid warming of the ocean around South Georgia, Southern Ocean, during the 20th century: Forcings, characteristics and implications for lower trophic levels, Deep Sea Research Part I: Oceanographic Research Papers 01/2008

Under these circumstances glaciers are retreating at an increasing rate. Many of these glaciers extend to the sea and form an effective barriers, subdividing mainland South Georgia into numerous smaller "mainland islands". Glaciers act as natural barriers to the spread of seeds, animals and disease, both alien and native. At present, glaciers protect a safe haven along the south coast, free of the worst invasive species as described above. As the climate warms, these glaciers will retreat onto land and no longer form effective barriers. Current studies estimate that 97% of South Georgia's marine glaciers have retreated in the past 50 years[14].

Climate change will also affect the extent of sea ice in the Antarctic which in turn has effects on the availability of krill for seabirds and seals which breed on South Georgia. Antarctic krill in South Georgia waters, is at the northern limit of its range and particularly susceptible to environmental change. The life-cycle of Antarctic krill is highly dependent upon sea-ice, and sea-ice must also occur within close proximity to krill breeding grounds. This is because larval krill feed on ice algae and other sea ice associated organisms to survive the winter and to get protected from predators. Increases in temperature are also expected to result in changes in phytoplankton community structure from a large-diatom dominated system to dominance by smaller organisms such as cryophytes. Krill is a dominant grazer of the larger phytoplankton, especially diatoms. The combined impacts of these changes may be greater than the sum of the parts.

Other Challenges

South Georgia is home to 95% of the world's Antarctic fur seal population. In recent years, high availability of krill and lack of commercial harvesting have resulted in populations growing rapidly. The increasing populations have had substantial impacts on the island through trampling and erosion and enrichment of soils from their faeces and urine. Their breeding habitat is expanding at South Georgia, and there is a growing risk of them trespassing onto the breeding territory of threatened species such as wandering albatross.

The number of tourists visiting South Georgia is again slowly increasing after a recession induced decrease over the last few seasons. Due to exacting standards promoted by International Association of Antarctica Tour Operators IAATO, and strict policy and guidelines and legislation enforced by GSGSSI, the current impact of tourism is minimal according to GSGSSI. Potential impacts of tourism include disturbance of wildlife, oil pollution, trampling of moss banks, removal of historic artefacts and disruption to scientific research. It is primarily the individual responsibility of tourists and their guides to ensure regulations are observed as there is little capacity for surveillance or policing. If visitor numbers do grow significantly in the future and there is an increasing demand to expand the range of activities undertaken, additional management interventions may be required.

4 Environmental governance

4.1 Overall structure of the government

In 1985 South Georgia and the South Sandwich Islands became a distinct UK Overseas Territory with a Commissioner as head of the Government. The Commissioner represents the British sovereign and is resident on the Falkland Islands concurrently acting as Governor of the Falkland Islands. The Commissioner has vested in him, legal, financial and administrative authority and responsibility for the governance of the Territory. The government also comprises a Chief Executive Officer who deals with policy matters and is also the Director of Fisheries, an Executive Officer who addresses vessel visit and expedition applications, an Operations Manager, an Environmental Officer and a Marine Fisheries Officer.

14 SGSSI Marine Protected Area management plan, 2012

The Financial Secretary and Attorney General for SGSSI hold similar, concurrent, appointments in the Falkland Islands' Government.

The Government of SGSSI consists of only 10 staff of which two are part time and three are based on South Georgia and fully engaged in administrative duties. Their duties include those of Harbour Master, Customs and Immigration Officer, Fisheries Officer and Tourism manager. The core Government staff have a diverse range of duties and obligations.

The Government of SGSSI is responsible for making its own laws that cover the principal activities of the Territory. This legislation is in line with, and implements, regulations under the Antarctic Treaty System (including the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)) and other international agreements. The UK retains overall responsibility for good governance, defence and foreign policy. The British Forces (South Atlantic Islands) advise the Commissioner on matters concerning defence or internal security of the Islands. Argentina asserts a claim to sovereignty over South Georgia and the South Sandwich Islands, and briefly occupied the islands by force in 1982.

In consultation with stakeholders, the Governments of SGSSI and the UK have developed complementary rolling five year strategies which underpin their activities.

4.2 Review of current institutions

Decisions relating to international treaties and the obligation to ensure that relevant international law is implemented are the responsibility of the Commissioner in conjunction with the UK FCO.

Support on environmental governance is provided by the British Antarctic Survey, by the Centre for Environment, Fisheries and Aquaculture Science[15] (CEFAS) and by other consultants.

Fisheries are managed with international support. Conservation measures are set by CCAMLR south of 60º S and GSGSSI also applies these to their maritime zone. The British Antarctic Survey conduct applied fisheries research in Cambridge and at King Edward Point. Day-to-day administration is the responsibility of the government officers on South Georgia who deal with inspections, licensing and catch monitoring. Surveillance and patrolling are carried out by the fishery officers based on the fisheries patrol vessel (FPV) Pharos SG. *Pharos SG* embarked Fishery Officers are generally provided under contract from the Fisheries Department in the Falkland Islands.

As Government income is insufficient to address the range of challenges confronting South Georgia's unique environmental and historical resources the private charity, the South Georgia Heritage Trust, was formed in 2005. The Trust, registered in Scotland, has a board of seven international trustees from various countries, and has capacity to raise large amounts of funding for large projects such as the rat eradication project. It supports conservation projects, including alien invasive species eradication. SGSSI is part of the trustees and relevant steering committees.

4.3 Policy, strategy, plans and programmes

In September 2001, SGSSI, like other UK overseas territories, signed with the UK government an Environment Charter which includes statements of principles and undertakings by both parties on integrating environmental protection into all sectors of policy planning and implementation. The Government is also committed under the Environmental Charter to ensure that environmental impact assessments are undertaken before approving major projects. Whilst embodying the spirit in which environmental management is undertaken it is not fully enshrined in law. Nevertheless, the Wildlife and

15 The Centre for Environment, Fisheries and Aquaculture Science (Cefas) is an executive agency of the United Kingdom government Department for Environment, Food and Rural Affairs (Defra). It carries out a wide range of research, advisory, consultancy, monitoring and training activities for a large number of customers around the world.

Protected Areas Ordinance (2011) affords an extremely high level of protection to all flora and fauna within the Territory.

The most recent environmental management plan relating to the terrestrial environment is the 2006-2010 South Georgia Plan for Progress[16]. The government's approach is to provide a sustainable policy framework which conserves, manages and protects the islands' rich natural environment, whilst allowing for human activities and for the generation of revenue to be applied in conservation. The guiding principles of the policy are: Assessment and monitoring of environmental impacts - through permit application process; Initial Environmental Evaluation; Comprehensive Environmental Evaluation; Post visit reporting for regular monitoring purposes; Ensure that the monitoring requirements of ACAP and other conventions are met. It is worth mentioning that permitting requirements have recently been overhauled and are now very stringent, web based and consistent.

Regarding management of hazardous substances, prohibited and restricted substances are listed in the South Georgia Environmental Management Plan, 2000[17], and on the South Georgia website. Exceptions may be made for management or operational purposes at the discretion of the Commissioner. Waste Management and Disposal policy for existing stations and field work is based on Annex III of the Environmental Protocol to the Antarctic Treaty[18]. All wastes, except sewage, food and grey water, must be disposed of outside South Georgia. Exceptions may be made for management or operational purposes at the discretion of the Commissioner. Ships over 400GRT certified to carry more than 10 people are required to have an on board waste disposal plan and must carry a log book for recording information about waste disposal. A waste management plan must be submitted with permit applications for all land-based activities. All vessels must retain poultry waste on board for disposal at appropriate facilities outside South Georgia.

Prevention of marine pollution is based on Annex IV of the Environmental Protocol to the Antarctic Treaty. All vessels are prohibited from discharging oil, oily mixtures and other hazardous, radioactive or toxic material, plastics or non-biodegradable refuse inside the SGSS EEZ. Bunkering must only take place in Cumberland East Bay. All vessels (except vessels certified to carry 10 persons or less) are prohibited from discharging untreated sewage within 12 nautical miles of the shore. Sewage should be passed through an IMO approved sewage treatment plant before discharge. All vessels (except vessels certified to carry 10 persons or less) are prohibited from discharging food waste within 12 nautical miles of the shore. Food waste should be passed through a waste disposal unit and be able to pass through a screen with mesh size of less than 25mm before discharge. Poultry waste must not be discharged.

The policy on the control of introduced species' objective is to control or eradicate all non-indigenous mammal species and programmes are currently underway to achieve this. The introduction of alien species of plant or animal to South Georgia is prohibited except in accordance with a permit from the Commissioner, and strict quarantine measures must be observed to prevent the transfer of any introduced species to 'uninfected' parts of the island

Guidelines and procedures to prevent accidental introduction or transfer of alien species, available on the South Georgia website, must be followed. No poultry products may be taken ashore except for use at Grytviken/KEP and Bird Island. Food scraps must not be fed to birds.

At present the Government has no plans to allow the development or exploitation of any mineral resources at South Georgia or its surrounding waters.

There is no specific environmental management plan for the South Sandwich Islands but the islands do fall under the Wildlife and Protected Areas Ordinance and their maritime area is protected by the SGSSI MPA.

16 http://www.sgisland.gs/index.php/%28d%29Plan_for_Progress?useskin=edu
17 http://www.ecopuerto.com/bicentenario/informes/SouthGeorgiaPlan.pdf
18 http://www.antarctica.ac.uk/about_antarctica/geopolitical/treaty/update_1991.php

4.4 LEGAL FRAMEWORK AND ENFORCEMENT

Marine conservation is a major driver of GSGSSI policy and programmes, the Government adheres to Conservation Measures set out by CCAMLR (see below) but also implements additional measures to further protect marine life.

Besides, the SGSSI participates in the following multilateral environmental agreements:

MEA	Remarks
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	The CMS was extended to cover SGSSI in July 1985. In April 2004 the UK Government ratified the Agreement on the Conservation of Albatrosses and Petrels (ACAP) on behalf of the SGSSI. In November 2010 ACAP provided the GSGSSI with priorities and guidelines for its implementation.
Convention on Biological Diversity	This Convention has not yet been extended to SGSS, although commitments have been done to facilitate such extension.
Convention on Trade of Endangered Species	Although CITES has not been formerly adopted by SGSSI, its provisions are broadly reflected in SGSSI's custom ordinances.
Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) 1980	SGSSI lie within the area covered by CCAMLR. The management of the areas remains the responsibility of the government concerned, however GSGSS comply with CCAMLR decisions and play an active role in CCAMLR. This Convention also incorporates into its area the International Convention for the Regulation of Whaling and the Convention for the Conservation of Antarctic Seals. Hence those conventions apply to the SGSS EEZ south of 60ºS.

GSGSSI strive to ensure that the risks of ship wrecks are minimised by ensuring that all fishing vessels are compliant with the Torremolinos Protocol[19] that sets out safe operating practices and conditions.

Legislation for South Georgia is the responsibility of the Commissioner. Legislation is published in a Gazette once or twice per year. The legislation most relevant to environmental protection in the SGSSI is indicated in the table below.

Item of legislation	Comments / detail
Wildlife and protected areas ordinance 2011, as amended	The ordinance includes protection of native species and habitats; prohibition of inhumane methods of capturing or killing animals; prohibition of possession and transport of live or dead wildlife - it is an offence to wilfully or carelessly introduce non-native species, and powers to designate and manage Specially Protected Species and Habitats, Specially Protected areas and Marine protected areas. Permits are required for any activity undertaken within the Territory that may cause damage to the islands biodiversity. In order to obtain a permit all projects should go through an environmental impact assessment and where appropriate, ethical review.
Marine Protected Areas order 2013	This order repeals the 2012 version, and includes further protection measures such as depths for fishing, benthic closed areas, etc. It also clarifies some aspects of the 2012 order. As stated above the order has established the MPA in the SGSS EEZ north of 60ºS.
Prohibited Areas Ordinance 2010	Prohibits entry into certain areas except with the permission of the Commissioner or, in the case of vessels, entry into the sea within such an area due to stress of weather or by reason of force majeure. The ordinance aims at protecting persons from danger to their health and safety and to protect the heritage value of the areas to which the order relates.

19 Neither the 1993 Torremolinos Protocol, nor the 2012 Cape Town agrément on its implementation could be enacted so far. The UK is not a signatory of the Torremolinos Protocol.

Fisheries (Conservation and Management) Ordinance, 2000 with amendments	Provides for the regulation, conservation and management of the fishing waters around the islands. Contains provisions for fisheries licensing and enforcement of fishing regulations, and the penalties for illegal fishing. Licence fees cover the costs of monitoring and research control and surveillance, administration and analysis of data from the fishery. Unlimited fines can be levied on fishing operators if vessels are caught fishing without the appropriate licence, and vessels, catch and fishing gear can be seized if the fishing operator is found to have committed an offence.

The Wildlife and Protected Areas (WPA) is accompanied by strict biosecurity protocols[20]. The protocols are updated on an annual basis to ensure that they reflect best current practice and incorporate any new developments. All visitors are required to comply with the biosecurity protocols and this forms part of the visitor declaration which must be signed as part of the landing and customs procedure.

A revised Marine Protected Area Order came into force on June 13th 2013 with additional protection including a ban on bottom fishing deeper than 2,250 m, the creation of benthic closed areas in the depths fished for toothfish, a seasonal closure of the Antarctic krill fishery and a 12 nm pelagic closed area around the South Sandwich Islands.

4.5 Monitoring

In November 2010, Shallow Marine Surveys Group (SMSG) undertook a baseline survey of the shallow marine environment (< 20 m) on the north coast of South Georgia. Subtidal habitats between 5 and 18 m depth, and intertidal habitats surrounding Grytviken and King Edward Point were surveyed by divers. Such comprehensive baseline data is essential for detecting and monitoring species invasions. Settlement plates were established at three locations, and will be checked on a regular (annual) basis for the presence of any non-native species.

Inshore plankton surveys are conducted each month in Cumberland Bay and Bay of Isles by the FPV Pharos SG, with samples identified by the scientific team at KEP. The surveys are designed to provide data on the abundance of fish larvae, but provide additional data on general zooplankton abundance. The FPV Pharos SG also tows a Continuous Plankton Recorder (CPR) from the Falkland Islands to South Georgia every two months for SAHFOS (the Sir Alistair Hardy Foundation for Ocean Science). The samples analysis provides long-term information on plankton and micro plastics around the islands.

Trawl surveys are undertaken on the South Georgia shelf on an annual or biennial basis and provide data on the abundance and biomass of demersal fish to support ecosystem based management of fisheries. In particular the survey provides estimates on mackerel icefish and provides an index of recruitment of juvenile toothfish. The GSGSSI trawl survey series dates back to 1990, with additional data collected by US and Polish surveys in the late 1980s.

The Long Term Monitoring and Survey (LTMS) programme of the British Antarctic Survey monitors land-based predators at Bird Island since 1968 and more recently at Maiviken, near King Edward Point. The BAS LTMS work aims at measuring changes in Antarctic ecosystems research the processes that drive them. This includes estimates of breeding population size, reproductive success and the quality and abundance of food eaten by seabirds and seals at these sites and for the Scotia Sea. Data also includes quantity of marine debris and entanglement.

In 2008 a board walk was constructed at Prion Island to enable visitors to view wandering albatross without damaging fragile tussac and moss vegetation. Visits to Prion Island are restricted to two vessels a day and not allowed between the 20th November and the 17th January. The closed period minimises disturbance to the wandering albatross during a critical period of their breeding cycle. In addition the closure minimises disturbance to fur seals during pupping on the landing beach. To monitor the impact of

20 http://www.sgisland.gs/index.php/(d)Biosecurity?useskin=edu

tourism on wandering albatross there is a monitoring programme whereby the breeding success of birds on Prion Island and nearby Albatross Island is compared.

4.6 Environmental Awareness

Recent media activities have raised awareness about the threats posed to some species of charismatic mega fauna and these can be used as flagship species for conservation projects. However, because of the remoteness and relative inaccessibility of the island, there is a reliance on media to convey conservation messages as few people have the opportunity to witness first hand.

4.7 Funds for the Environment

As stated above patrolling the EEZ costs around 50% of the Government's total annual expenditure (2012 figures). Other significant expenses are: upkeep and running of the King Edward Point facilities (about 10% of annual expenditure in 2012), fisheries law implementation and research (8% in 2012), personal emoluments (7.5% in 2012) and environmental and conservation projects (7% in 2012).

With limited funds for the environment, the limited composition of GSGSSI induces a lack of capacity to devote large amounts of time to lobbying and applying for grant funding. Nevertheless, the GSGSSI has been able to direct funds for the environment. Some recent projects undertaken are:

Area/Topic	**Name**	**Budget**	**Source(s) of funding**	**Type of funding (loan, grant, co-financing)**
Invasive species	Reindeer Eradication Project	£ 1 million	GSGSSI	Self-funded
Invasive species	Invasive plant eradication project	£ 20k per annum	GSGSSI	Self-funded

5 Cooperation

There have been a number of terrestrial and marine projects in South Georgia over the last five years including rat eradication feasibility, biosecurity, benthic survey and fish surveys. In addition the British Antarctic Survey carries out ongoing BAS ecosystem science base on Bird Island, with monitoring of seals, penguins and albatross.

Some of the main projects carried out by GSGSSI since 2006 are:

Area/Topic	**Name**	**Budget**	**Source(s) of Funding**	**Type of funding (loan, grant, co-financing)**
Invasive species	Rat Eradication Project	£ 7.5 million	South Georgia Heritage Trust (funds via charitable donations). UK – DEFRA's Overseas Territory Environment Project	Grant
Marine conservation	GSGSSI MPA	N.a.	GSGSSI	Staff costs etc. funded under Government running costs.

There are no in-house restrictions on an individual officer contacting possible funding sources i.e. EU LIFE funding. However, this would normally be done in consultation with the rest of the Government and include policy guidance from the Chief Executive Officer.

6 Conclusions and recommendations

SGSSI has no permanent population, has a very small government operating from the Falkland Islands with two permanent representatives in South Georgia. The territory is of great importance to seabirds in the South Atlantic, has a unique marine environment and has the largest sustainable fisheries marine protected area in the world. Much of the biogeochemical and biodiversity of the ocean within SGSSI EEZ is still unknown to science, particularly at the hydrothermal vents of South Sandwich. The Government's on-going aim is therefore to conserve the wildlife and natural environment in a near pristine state.

Historic human activity has had an adverse influence on South Georgia. Rats and reindeer are considerable concern, but are being eradicated from some areas with success. Introduced flora (such as the dandelion and annual meadow grass) are widespread and in some areas have excluded native flora. The melting of glaciers due to warming is opening routes for further spreading of invasive alien species. Another impact of humans are abandoned whaling stations. These have asbestos as well as oil, which with time are degrading and will allow release of the substances. Finally there is impact of wrecked vessels which were only partly dismantled.

Through specific controls, permits and management plans, SGSSI is being able to control the impacts of tourists.

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Increase the resilience of the South Georgian environment to current and forecast threats from invasive species.	Assess current status of invasive species in terrestrial and marine environments, assess probable impacts of climate change, and develop adequate policies.	Great progress has been made in invasive species management but some problems are outstanding; For invertebrate and plant species additional research is needed to investigate viable alternatives such as novel herbicides. Little is known and further research is needed on invasive species management in the marine realm. There is a significant lack of knowledge regarding how warming habitats will affect invasive species distributions.	High priority – on going	GSGSSI and other stake-holders i.e. SGHT	To date £ 6 million	Eradication attempts are not always successful. Invasive species establishment and population growth are linked to climate change.	Life+
	Activities						
	Conduct survey work to determine the distribution and abundance of both terrestrial and marine invasive plants and invertebrates. Model the effects of temperature on invasive species distribution. Assess the current state of glacial fronts in order to both prioritise and establish invasive species management measures in response to climate change. Research risks associated with marine invasions. Develop policies to protect the endemicity of the marine environment taking into account the research findings and the reliance on shipping traffic for access.						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Improve the MPAs through informed management and policy decisions.	Determine if the closed areas are an effective management strategy for the protection of marine biodiversity and vulnerable ecosystems around South Georgia and whether they are a useful tool in enhancement of commercial fish stocks.	Deep water (generally over 1000m) have been little-studied to date because of their inaccessibility.	Medium-high priority 3-5 years	GSGSSI, BAS, fishing licence holders, MOD	c. £100,000	Unknown effects of climate change on marine biodiversity and how this will influence the efficacy of MPAs	Life+, licence fees from fishery
	Activities						
	Develop methods to assess the status and recovery of benthic and demersal species in up to three offshore benthic closed areas within the South Georgia and South Sandwich Islands Marine Protected Area (MPA). Utilise high resolution swath systems on military or civilian vessels to map the benthic closed areas and help understand their bathymetry and small scale features. Use a suite of assessment methods (e.g. novel camera work alongside more traditional mechanical and fisheries sampling methods) to describe benthic ecosystems within the closed areas and set benchmarks for monitoring their health and recovery.						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Decontamination of legacy whaling station industrial sites.	Removal of oil, asbestos and other hazardous materials. Dismantling unsafe structures.	Significant amount of waste oil, asbestos and other hazardous waste remains within four derelict whaling stations. The tanks containing the waste oil are rapidly deteriorating and in time the oil will leak from the tanks.	Medium – high priority 3-5 years	GSGSSI, expert consultants	£50 million	Not possible to find country to take hazardous waste – in Territory disposal not possible. Soil contamination prevents full site restoration A lack of sufficient funding	UK Government
	Activities						
	Identify the most adequate country/territory that could receive and manage the waste. Mobilize funds for the removal of asbestos and oil. Implement the plan for removal.						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Strengthen and profit from compliance with MEA	Extend Convention on Biological Diversity to South Georgia, ensure compliance with ACAP, propose RAMSAR sites, propose world heritage or biosphere reserves	ACAP implementation plan and reporting in place. No Ramsar sites designated, although sites meeting the criteria have been identified.	High priority 1-3 years	GSGSSI	£10,000	Seabird populations on South Georgia decline as a result of fishing outwith the Territory Maritime Zone	GSGSSI
	Activities						
	Whole island surveys every 10 years following the 2003/4 Albatross census and the 2005/6 Petrel Surveys. Annual surveys of the breeding wandering albatross populations on Albatross and Prion Islands. Preparation of applications for designation of RAMSAR sites and WH sites/Biosphere reserves. Design and designation of terrestrial protected area network.						

Goal	Action	Baseline situation	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
International agreement on bird by-catch mitigation methods.	Advocacy towards the establishment of an agreement Contribute to high seas enforcement.	High levels of by-catch in fisheries off the coast of South Africa and South America continue to reduce the populations of some bird species.	Medium priority 1-3 years	MS to which OCTs are linked	£10,000	Strong diplomatic link and working relationship needed with target nations	ACAP, GSGSSI, JNCC, FCO
	Activities						
	Identify target fisheries and help them develop effective by-catch mitigation measures						

ANNEX D :

SAINT HELENA, ASCENSION ISLAND AND

TRISTAN DA CUNHA

SUMMARY

The territory of Saint Helena, Ascension and Tristan da Cunha (SHATdC) is a grouping of three largely separate and disparate territories which because of their remoteness, are rich in biodiversity and high in endemism. This biodiversity has been under severe stress since the historically recent human settlement of the islands, as a result of direct disturbance by man and disruption caused by introduced species. While much has been done to rebuild communities and provide protection, ongoing effort will need to be continued to ensure that these islands retain their natural and historic capital on which they can build a successful tourist industry needed to ensure their viability (Saint Helena), ensure the ongoing health of the crayfish fishery (Tristan da Cunha) or revert biodiversity loss (Ascension). Although St Helena, Ascension and Tristan da Cunha constitute a single OCT, they are more like three separate territories, and are treated as such where possible in this territorial profile.

1 BACKGROUND INFORMATION

	Group	Saint Helena	Ascension Island	Tristan da Cunha
Land area (km^2)[1]		122	88	98
Exclusive economic zone (km^2)[2]		444,916	441,658	754,720
Population (2008)	5,213	4,257	702	254
GDP/capita	£ 3,968 (2010)			
Literacy rate (aged 12 and more)		94.7%	99.2%	99.1%
No qualification / Post graduate		2593 / 20	426 / 0[3]	180 / 0[4]
Unemployment rate	2.4% (2008 Census)	2%[5] (2009/10)	n.a.	n.a
Poverty	There is relative poverty particularly in Saint Helena. The weekly expenditure per capita of 47% of households is on the lower 20% expenditure range.			

1 Statistics Yearbook 2012-2013, Statistics Office, Corporate Policy and Planning Unit (CPPU), Saint Helena Gov.
2 http://www.seaaroundus.org/eez
3 There are 59 residents with Degree equivalent or Nursing and teaching
4 There are 10 residents with Degree equivalent or Nursing and teaching
5 It is stated that it includes Royal Mail Ship Saint Helena employees, and that due to the restoration of Citizenship rights (2002) it is not possible to monitor offshore employment numbers.

2 OVERVIEW

The Territory of Saint Helena, Ascension and Tristan da Cunha (SHATdC) is a grouping of three largely separate and disparate territories. The distance between the northern tip of Ascension Island and the southern tip of Gough Island is 3,642 km. It was previously known as Saint Helena and Dependencies until September 1, 2009, when a new constitution came into force giving the three islands equal status within the territory.[6]

Saint Helena is a remote island situated at latitude 16°S, between Africa and South America. It is formed by the rugged deeply eroded summit of an extinct composite volcano rising from the sea floor at a depth of 4,224m. The highest point, Diana's Peak, is 820m above sea level. The small size of the visible island belies the true dimensions of this massive volcano; it is a major feature on the earth's surface. Natural standing water is rare, due to the porosity of the rocks, pyroclastic deposits and high rates of evapotranspiration.

Ascension Island lies some 1200 km north-west of Saint Helena, at about 8°S. Ascension is a rocky peak of purely volcanic origin (44 distinct dormant craters) with its base just west of the mid-Atlantic ridge. Much of the island is covered by basalt lava flows and cinder cones. The last major volcanic eruption took place about 600 years ago. The highest point (Green Mountain) is 850 m, and is covered with lush vegetation which is increasingly spreading throughout the island. The climate on Ascension Island is subtropical.

Tristan da Cunha is a group of four islands in the South Atlantic 2430 km SW of Saint Helena and 2800 km west of Cape Town[7]. Tristan da Cunha (TdC), Inaccessible and Nightingale Islands are grouped together, while Gough Island lies about 350 km of TdC. Only TdC is inhabited and is one of the most isolated inhabited islands in the world. Queen Mary's Peak on Tristan da Cunha, at 2,062 m, is the highest island mountain in the South Atlantic. Gough Island, rising to 910 m, is the mountainous summit of a Tertiary volcanic mass. It has dramatically steep cliffs forming much of the coastline, and an undulating plateau rising to 910m above sea level. There is active volcanism on TdC, the last eruption was in 1961 but there is an ongoing risk of future volcanic activity. Nothing can be done to reduce this risk, but monitoring is ongoing.

Given the remoteness of the islands, access is a major issue. Ascension Island has been the only of the islands with an airport. The airport on Ascension Island is operated by the US government, and is a military airport. Currently, there are 2 flights a week to the UK, on board of Royal Airforce planes with 10 seats for civilians. Saint Helena can only be reached by the passenger and supply ship 'RMS Saint Helena' which calls on average 25 times a year, but an airport is under construction[8]. The 'RMS Saint Helena' is planned to cease operations when the airport opens in early 2016. Access by ship is from Cape Town (several days voyage) or Ascension Island. TdC also depends entirely on shipping for physical contact with the outside world. A fishing company provides a cargo and passenger service between the island and Cape Town. TdC access to the sea is only possible for around 60 days per annum, and construction of a port is a major priority.

Saint Helena's economy depends substantially on financial assistance from the UK, £ 26.8 million per year average over 2009/10 to 2011/12[9] on a GDP of about £ 20 million. These numbers are changing due to the construction of the airport. The local population earns income from fishing, livestock-rearing and the sales of handicrafts. Currently only waters within approximately 12-15 miles of Saint Helena are

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6 http://www.legislation.gov.uk/uksi/2009/1751/schedule/made

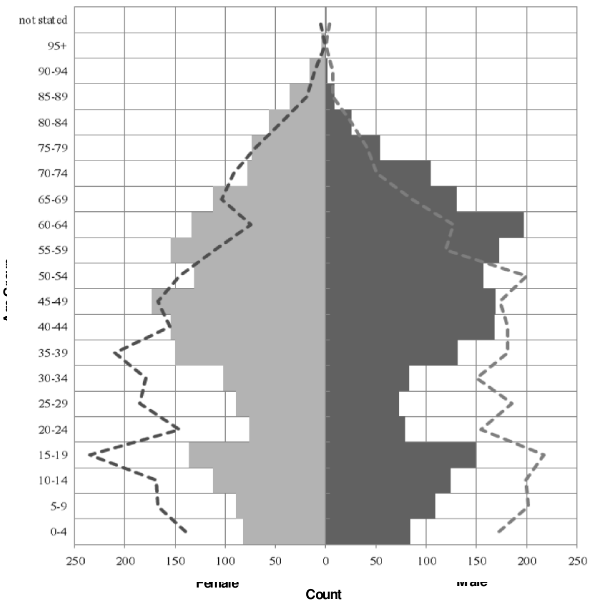
7 www.tristandacunha.org

8 In November 2011 the British government announced decision to build the Saint Helena Airport from 2012 through 2015, after UK 2009 recession had caused postponement of the plans. This airport total construction and ten years of operation will involve an investment of £236.6m, the largest single investment ever made in the island. In November 2013 the construction reached the half-way mark in filling Dry Gut8.

9 The source of data is the Saint Helena Statistics Yearbook 2012/2013. The June 2012 FCO Overseas Territories Security Success and Sustainability indicates a GDP £ 15.5 million and 3 year average cooperation at £ 23.5 million per year.

fished. Therefore, less than 1% of the 446,500 km^2 Saint Helena Exclusive Economic Zone (EEZ) is currently legally fished. Saint Helena 'pole and line' and 'rod and line' tuna fisheries, undertaken by small artisanal fisheries boats is Marine Stewardship Council (MSC) certified. The small agriculture sector on Saint Helena directly contributes to almost £ 600,000 annually to the local economy and provides full-time employment to up to 20 persons annually. Informally, up to 100 persons are engaged in agriculture through part-time and small-holder activities. The sector comprises the following informal subsectors: vegetable cropping, coffee cropping, banana cropping, livestock and bee-keeping. The agriculture system is being modernized, however the island is reliant on significant supplies of imports; total annual fresh vegetable and meat imports (meat – excluding processed meat products) carried a value of almost £ 750,000 in 2011[10].

Because of a lack of employment, 25% of the work force has left to seek employment on Ascension Island, in the Falkland Islands, and in the UK. This has led to current near full employment of those who stayed, but impacts negatively the community and family links. The resident population of Saint Helena Island fell rapidly from 5,157 in 1998 to 4,186 in 2003. British citizenship was restored to Saint Helena in 2002, having a significant impact on labour migration of the population. Estimated population at the end of 2012 was 4,280. Children are often left with family and relatives, or depart with the parents. Households of elderly people, single-parent, disabled, mentally infirm, and long-term unemployed require social welfare provision. About 25% of the population, including 90% of those older than 65, receive some social security support.



The resident population of Saint Helena at the 1998 (dashed line) and 2008 (bars) censuses. Source: Saint Helena Statistics Yearbook 2012-2013

The island hopes that the new airport will reverse the spiral of decline in the Saint Helena economy. The SH government believes that 30,000 tourists per year (500-900 visitors per week), is needed to make Saint Helena financially self-sustaining. To achieve and seize the opportunity, the government's idea is to establish, through private sector investment, two to three cornerstone tourist developments, and develop fisheries, agriculture (including distilling) and support services. Adequate legislation and incentives are required to improve the business environment.

Tristan da Cunha's economy is based on traditional subsistence farming, fishing and processing. Official statistics of TdC economy are not known because nominal GDP figures are not published. There is a crayfish factory that provides some employment on fishing days when 12 small island boats catch crayfish for processing. TdC is largely self-financing and is not in receipt of budgetary aid from the UK, although HMG does provide funds for expatriate posts and capacity building. There is some revenue from interest on a reserve fund. Foreign earnings come from the royalties from the commercial fishing of Tristan crayfish, under the terms of an exclusive concession granted by the island, and the sale of postage stamps and coins. There is limited revenue from tourism – 3 or 4 tourist ships per year. TdC's main source of income is the island's crayfish factory, which sells its product to the United States, Australia and Japan via the South African company 'Ovenstone'. About 80% of the economy flows from the income generated by lobster fishing. In 2011 Tristan crayfish was awarded a Marine Stewardship

10 Saint Helena National Agriculture Policy and Implementation Strategy 2013-2015.

Council certification, which generates added value to the product A fire on the 13th of February 2008 destroyed the previous fishing factory and two power generators, however these have now been rebuilt. This has meant some options were required regarding investments. Everything enters and exits Tristan da Cunha – including medical supplies – by boat. The harbour though needs continual repairs and the island is hoping that a decision will be made to either extend or build a new harbour.

Like TdC, Ascension Island is largely self-financing. All residents are contract employees and their families, and when contracts end the persons must leave. Hence there is no unemployment on Ascension Island and no indigenous population and no right of abode. During the Second World War, the US Government built 'Wideawake' airstrip on the island. In 1957, a US Air Force presence was re-established and the airstrip and ancillary facilities enlarged. It is now a missile tracking station and an airfield used by UK and US Air Forces. Ascension Island continues to provide a re-fuelling stop-over point for RAF flights to the Falkland Islands and a small UK military presence to support these flights. Ascension is also used by Cable and Wireless, the BBC and the Composite Signals Organisation. These 'user' organisations financed all non-military activities on the island until 2001/2. A plebiscite was held on Ascension Island in 2002, and 95% of those who voted chose the option of forming an Island Council, composed by elected people that have been resident in the island at least for 12 months. The offshore commercial longline fishery, made up entirely of non-domestic vessels, is the only economic sector likely to be posing pressure on the environment, although these impacts are largely unquantified at present. An important source of revenue for the local government are licence fees of offshore marine fishery (mainly big-eye and yellow-fin tuna).

The islands of SHATdD are of volcanic origin. Tristan da Cunha is still active. The last eruption was in 1961 when lava flow destroyed the old crayfish canning factory, and forced the entire evacuation of the island. There have been at least five significant earthquakes on Ascension in the last 15 years, one in 1992 of approximately Richter 7. In May 2001, Tristan suffered a severe hurricane when every building on the Island except the Catholic Church was damaged. Saint Helena is not very prone to natural disasters.

3 Biogeography, endemism and importance for global biodiversity

Saint Helena's isolated position has given rise to an unusual and remarkable land and marine flora and fauna. Of the 60 known native species of plant, 49 are endemic. Of 1100 land invertebrates, 400 are unique to Saint Helena. At least six unique land birds once occurred on Saint Helena, but only one of these (the wirebird) survives today. Ten inshore fish are found only around the island, and 16 more are found only there and on Ascension Island. There are several species of endemic marine invertebrate, with several new species in the process of being described[11].

Much of *Ascension Island*'s global conservation importance comes from the island's remoteness. It has one of the most remarkable island flora and fauna in the world. It is of world significance for its 11 species of breeding seabird (especially on Boatswain Bird Island), the most renowned of which is the unique Ascension Island frigatebird. It has also one of the most important breeding green turtle populations in the world. There are 10 endemic species, 3 are thought to be extinct[12] unique species of land plant, 11 of marine fish and shellfish and over 20 of land invertebrates. The recently introduced Mexican thorn bush provides food and cover for rats, and threatens Ascension’s green turtle population, the surviving unique desert flora and fauna and some geological features.

11 Funding from Darwin Plus has allowed research to support the development of the marine management plan and marine and coastal species action plans has identified several new species.

12 Ascension Island parsley fern, thought to be extinct for over 50 years, were discovered by conservation biologists in 2009, see http://www.kew.org/plants-fungi/Anogramma-ascensionis.htm

The isolation of *Tristan da Cunha* and the fact that it was devoid of all living organisms at its volcanic origin, mean that the evolving flora and fauna of the island hold a special interest for scientists and visitors. There are no indigenous terrestrial mammals but the introduction of rats and mice in the 1880s destroyed much of Tristan da Cunha's indigenous bird life. Nightingale and Inaccessible Islands are rodent-free and are home to endemic land birds, such as the Tristan thrush and the rare Inaccessible rail, the smallest flightless bird in the world. Millions of seabirds, such as the yellow-beaked albatross and the greater shearwater, breed there, as do fur seals and elephant seals, now recovering from the overhunting of the 19th century.

All together, the islands have 13 endemic birds, 3 critically endangered (Gough bunting, Saint Helena plover and Tristan albatross), 7 endangered and 9 vulnerable (including the Ascension frigatebird).

Over 40% of Tristan de Cunha's territory is a declared nature reserve. The EEZ is a whale sanctuary. Gough Island was designated a Wildlife Reserve under the Tristan da Cunha Conservation Ordinance, and is a Natural World Heritage Site, as is Inaccessible Island. It is uninhabited except for the personnel of a weather station (usually eight people) which the South African National Antarctic Programme has maintained continually on the island since 1956. It is one of the most remote places with a constant human presence. According to UNESCO, Gough Island is the least-disturbed major cool temperate island ecosystem in the South Atlantic, and one of the most important seabird colonies in the world. Two endemic landbirds are found: the Gough moorhen and the Gough finch, as well as to 12 endemic species of plants. Gough is in the Tristan da Cunha Priority One Endemic Bird Area, as defined by BirdLife. Inaccessible Island's values complement those of Gough Island, with two birds, eight plants and at least ten invertebrates endemic to the island. It is also largely pristine and is one of the few temperate oceanic islands without introduced mammals. It has two birds, eight plants and 10 invertebrates found nowhere else, 70 terrestrial plant and animal species are restricted to the islands and 60 marine species are endemic to the island group. Gough Island has been described as a strong contender for the title 'most important seabird colony in the world', with 54 bird species recorded in total, of which 22 species breed on the island, 20 being seabirds. Four species are threatened. There are three endemic genera. About 48% of the world's population of the northern rockhopper penguin *Eudyptes chrysocome moseleyi* (classed as vulnerable) breed on Gough. Atlantic petrel *Pterodroma incerta* (also vulnerable) is endemic to Gough and the Tristan group of islands. Gough is also a major breeding site of the great shearwater *Puffinus gravis* with up to 3 million pairs breeding on the island. The main southern ocean breeding sites of little shearwater *Puffinus assimilis* are Tristan da Cunha and Gough Island, with breeding pairs numbering several million. The endangered wandering albatross *Diomedea dabbenena* is virtually restricted to Gough, with up to 2,000 breeding pairs. The last survivors of the southern giant petrel *Macronectes gigantous* also breed on Gough, with an estimated 100-150 pairs, is classed as vulnerable. Gough moorhen *Gallinula comeri* (also vulnerable) is found in fern bush vegetation areas. Estimates of population size vary from 300-500 pairs to 2,000-3,000 pairs. About 200 pairs of Gough finch *Rowettia goughensis* (vulnerable) have been recorded, although recent estimates suggest that there may be 1,000 pairs.

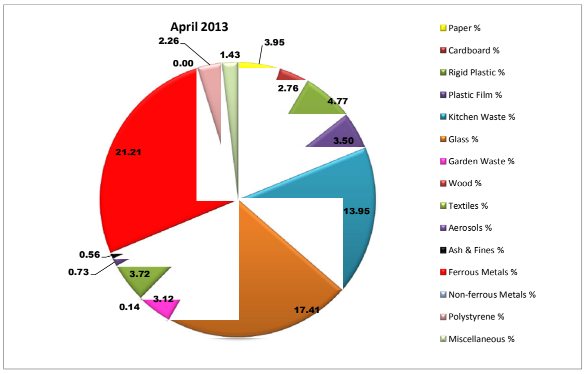
4 Main environmental challenges

4.1 Overview

The islands are all of volcanic origin, and are prone to a number of natural hazards. None of the islands has any major polluting industries. The two main pressures are invasive species impacting on the rich heritage of birdlife and fauna, and the disposal of solid and liquid waste. Besides the direct effect on biodiversity, these pressures also impact livelihood, as invasive species also affect horticulture, agriculture and pollution affect public health.

The water supply in Ascension has been limited, but two plants with 120 m^3/day capacity have recently replaced the existing plants that are almost 25 years old. Only Ascension counts with a sewage treatment plant. Drinking water treatment has improved in Saint Helena, but it is still insufficient to serve the needs of the population. In Saint Helena and Tristan da Cunha there is no treatment of sewage: raw sewage is pumped out to sea, and there is a need for a sewage treatment facility, more noticeably on Saint Helena. DFID has stated that it would fund an adequate sewage disposal system for Saint Helena only if full cost recovery is incorporated.

On Saint Helena, domestic and commercial waste is collected regularly and disposed of in the municipal landfill. Clinical waste is collected separately and incinerated. The waste wheel[13] of Saint Helena shows waste distribution in 2013. Total production in Saint Helena is on the order of 536 tons per year, or 0.22 kg waste per capita per day. On Ascension Island waste is collected from Georgetown and Two Boats and taken to the One Boat; public refuse pit for either open air burning or burying. Businesses also use *One Boat* for waste disposal. Typical items which are burnt include municipal waste, furniture, wood, mattresses etc. Burying is currently stopped but typical items which used to be buried include, fridges, freezers, asbestos, cars, scrap metal, redundant containers etc. The AIG has decided to leave historic waste dumping grounds as they are, tyres and batteries are stored within One Boat. Oils are disposed of in the "sludge pit" (hole in the ground).



Waste wheel of Saint Helena in 2013. Source SH Government

Saint Helena has twelve 80 kW wind turbines which can in principle generate 20 per cent of the island's electricity demand, thereby reducing the cost of importing fuel for diesel generators. Further renewable energy generation is planned with the introduction of solar farms.

Tristan da Cunha managed to achieve a Marine Stewardship Council sustainability certification for the rock lobster fishery, as a reward for responsible management of fisheries. There have been two major incidents[14] with environmental impact in the marine environment – first, the wrecking of an oil rig at Tristan in 2006, and then the *MS* Oliva, a bulk carrier of soya, in 2011. Both of these vessels are thought to have introduced new species into Tristan's marine environment, and the *Oliva* also released many tonnes of soya onto the seabed, and oil into the water. A clean-up operation appears to have dealt with the oil rapidly enough to avoid lasting damage. There has also been some unquantified increase in erosion due to overgrazing by feral livestock, especially on the higher/steeper parts of Tristan.

4.2 MAIN CHALLENGES

In 2005, the Environmental Vulnerability Index[15] indicated Saint Helena as *Vulnerable*, even with significant information gaps as only 48% of topics were covered.

The most pressing issues identified were isolation, the percentage of land lower than 50 m above sea level; number of known species that migrate outside the territorial area at any time during their life spans (including land and all aquatic species) / area of land; number of endangered and vulnerable species per 1000 km^2 land area (IUCN definitions); number of species known to have become extinct since 1900 per 1000 km^2 land area (IUCN definitions).

The main environmental challenges faced by the SHATdC Islands were also identified in the 2006-07

13 http://www.sainthelena.gov.sh/environmental-risk-management/
14 See www.tristandc.com for more detail on both of these incidents
15 http://www.vulnerabilityindex.net/EVI_Country_Profiles.html

Environmental Profiles and their gravity is provided in the table below.

Issues	Situation in 2006-07	Current Situation
Pressures on biodiversity from introduced species and other threats	Moderate	Severe
Climate change	Moderate	Moderate
IUU fisheries	Moderate	Moderate

Despite the work done on invasive species, the problems are still not solved and what remains to be done requires further research and funding for both flora and marine environment. One new emerging issue is waste management (severe).

Challenge 1 - Pressures on biodiversity: introduced species and other threats - Severe

SHATdC are host to an enormous wealth of flora and fauna, much of which occurs nowhere else in the world. But these resources have been greatly depleted since the islands were settled by man, and many species are under pressure from a number of threats. The greatest threat comes from a variety of alien species introduced by man, some deliberately, others inadvertently. While some introduced species are benign, many are threatening endemic and/or vulnerable species of flora and fauna. Efforts have been ongoing in recent years to control the invasive species, but some native and endemic species were already lost. Without ongoing work and new resources, there will be further species extinctions in these OTs.

The islands need to make efforts to preserve their wildlife and native plants because:

1. it is an obligation of the territories concerned under the Convention on Biodiversity, and
2. the rich diversity of bird and plant life will be one of the major assets of the territory in expanding tourism to the islands (SHG, 2005).

Albatrosses and petrels are also falling victim to the longline fishing industry. The baited hooks of international fishing vessels are fatally attractive to these birds, which become hooked and drown in large numbers - an estimated 100,000 albatrosses, of 21 species, have been dying on longlines every year[16].

Saint Helena

Large-scale destruction of native plants and animals followed the Island's discovery in 1502. Deliberate introduction of alien plants and animals caused further declines of habitats and species. The remaining patches of native vegetation are small. Six species have become extinct, and several survive only in cultivation. Small population sizes and alien species threaten the survival of Saint Helena's land plants and animals. There are several ongoing projects to re-establish endangered / critically endangered fauna of Saint Helena, and to increase the habitat for the wirebird.

Ascension Island

According to AIG Conservation Department, the island is more heavily impacted by invasive species than almost any other island on Earth - 95% of plant species are introduced. All habitats have been subject to encroachment by introduced species to a considerable extent, and virtually nothing still exists that could be described as truly “native habitat”, with the possible exception of some areas of extremely barren coastal desert and some relict fragments of upland vegetation on exposed, misty slopes. In an effort to beautify the island, many tropical flowers were planted. The Mexican thorn *Prosopis juliflora* has been particularly destructive to native vegetation (and also poses operational difficulties for the island’s organisations). Since it was introduced (in the 1950’s or 60’s) it has spread extensively across the drier lowlands of Ascension Island and is now the dominant plant species in these areas. An important vector for spread has been Ascension Island’s feral donkeys that ingest the seed, scarify and deposit it with a supply of nutrients. Also of concern are the tree tobacco *Nicotiana glauca* that has exploded in numbers

16 e.g. http://www.rspb.org.uk/supporting/campaigns/albatross/problem/threats.aspx

in the lowland areas in less than 20 years, and the tropical heliotrope *Heliotropium curussavicum* that has advanced particularly quickly around the coasts and is now locally dominant and mid altitude plants such as the yellowboy (*Tecoma stans*), buttonweed, guava (*Psidium guajava*) and tungy. In Green Mountain National Park, non-native vegetation dominates; a legacy of the eminent botanist Joseph Hooker who initiated the development of this man-made cloud forest by introducing over 220 exotic plant species from diverse parts of the world. The AIG Conservation Department has a number of shade houses for growing the endemics (and micro-prop in the lab) and these are then reintroduced to the wild and protected from grazing mammals.

Before the arrival of humans, Ascension was home to an estimated 20 million seabirds. Today, the seabird population is about 400,000[17]. The rapid decline in seabird numbers was caused by rats (arrived by ship), and deliberately introduced cats. The two native landbird species - a rail and a night heron - are both extinct. After a period in which birds could nest only on smaller islets off-shore, Ascension Island was declared free from feral cats[18] in 2006 and seabird nesting on the mainland has been increasing ever since. A domestic cat population still exists but there are strict controls on imports of cats to the island[19]. In 2012, the first two pairs of endemic frigate birds were observed nesting on the mainland after a 180 year absence, and nests have increased in 2013/14. Ascension Island still hosts large populations of rats, rabbits, feral sheep and around 50 donkeys. These animals have devastating effects on both the native flora and fauna, including browsing on the plant life, spreading the seeds of invasive plants in their faeces and preying on the eggs and young of seabirds and turtles. The Conservation Department supports the introduction of tighter control measures of these introduced mammals, such as castration of the donkeys and eradication of the sheep but at the present time this cannot happen due to lack of public support.

Tristan da Cunha

Invasive species are the main problem for biodiversity on the Tristan islands. Invasive plants on all of the islands have the potential to dominate native vegetation and change ecosystems. Invasive plants on Tristan are a pest in gardens and at the patches as well as being a problem for native species (e.g. NZ Christmas tree, logan berry). Invasive mammals (rats and mice) are preying on the eggs and chicks of many birds, and also eating large amounts of invertebrates and seeds. A number of alien species are widespread on Gough Island. Seabird populations are being threatened by house mice, which have become abundant. The mice originally arrived on ships bringing settlers, and later on supply ships, and in some cases arrived from shipwrecked vessels.

Conservation guidelines were introduced for all visits to Inaccessible and Nightingale Islands by the Tristan community and have succeeded in keeping these islands free of rats and mice. Projects have been undertaken at Tristan to develop feasibility studies for the eradication of rodents from Gough and Tristan. In the case of Gough, there has been continuing research effort to determine whether clearing mice from the island is possible with current technology. There has also been project work to clear invasive logan berry plants in some areas, to remove New Zealand Christmas trees around the settlement, to remove flax and other invasive plants from Nightingale and Inaccessible Islands, and to remove *Sagina procumbens* and other plants at Gough Island.

17 http://www.ascension-island.gov.ac/wp-content/uploads/2012/12/29-O-Ascension-seabird-leaflet.pdf

18 This has been achieved through a major project funded by the UK Foreign & Commonwealth Office with support from the Ascension Island Government and the Royal Society for the Protection of Birds, focused on the eradication of feral cats which were predating on the nesting birds.

19 Domestic cats need to be neutered/ spayed, wear a collar and be registered on the pet cat list organised by the Conservation Department.

Challenge 2 - Waste Management - Severe

It is known that there are problems with solid waste on both Saint Helena and Ascension Island, related to the limited capacity and inadequate methods used at both landfills. Locating and financing new waste disposal facilities are challenging given that the critical mass needed to make a sound modern disposal facility is lacking. The Saint Helena Island's Solid Waste Management Strategy (2012) provides a roadmap to minimise waste on the island following the principals of reduction, reuse and recycle. The first phase of landfill redevelopment will be completed in July 2014, which will allow for 24 new general waste cells, bird netting for the active cell, a waste reception centre and community composting and recycling facilities. The landfill redevelopment also conforms to international airport standards in preparation for airport certification. Plans are in hand to afforest the land fill site. This is important for aesthetic and safety reasons, as the landfill lies close to the new airport and tie into the adjacent Millenium Forest (a partially restored endemic Gumwood forest).

The Ascension Island Government has purchased an incinerator, a baler and a glass crusher, but is still deciding if to form agreement with companies for managing waste (would include recycle & segregate at source, burning at incinerator, use glass for refurbish roads, and off island transportation of metals and plastics) on island. For off-island disposal the options are either to use the shipping service MOD FIRS, or to form an agreement in which AIG would handle waste on behalf of the community operating businesses and dispose of this waste at the US military base, where the contractor CSR would then process it for off island disposal.

For Saint Helena and for Tristan da Cunha, there are no international agreements in place for the safe disposal of hazardous waste off-island. This means that several streams of hazardous waste simply accumulate on the islands.

Challenge 3 - Climate change - Moderate

Saint Helena, Ascension Island and Tristan da Cunha with their rocky shorelines and rugged mountainous terrains are less vulnerable to climate change than many of their fellow-OCTs. Nevertheless, the rise in mean temperature and its attendant climatic changes could cause difficulties to the islands, including:

1. Changes to fisheries. Many fish species are very sensitive to water temperature. Warmer water and changes in the oceans' currents will mean changes in flows of nutrients and species composition in ways which cannot be predicted. In particular, it is not clear how the crayfish fishery of Tristan de Cunha, critical to its economy, will be affected. The fishing industry in Saint Helena is currently of local importance and the offshore fishery is being developed. The coastal waters and marine life which they support will be important to the tourist industry as it develops in the future.
2. An expected increase in the frequency of storms and rough seas is a concern for the islands. At present harbour facilities are poor, there is an absence of breakwaters and mooring facilities. These difficulties are already deterring large cruisers from including Saint Helena (to be addressed as part of the 2014 Rupert's Wharf redevelopment) on their itineraries, and interfering with fishing and commerce on TdC. New mooring buoys in James Bay (Saint Helena) installed in 2013 have proved successful and are used regularly by visiting yachts. Increased incidence of rough weather would therefore be a cause for concern, at least until port facilities are substantially upgraded.
3. Temperature rise. This is very important for sea turtles as sex is determined by temperature. Currently around 70% of the hatchlings on Ascension Island are female and this will continue to increase as temperatures increase. An increase in the ambient air temperature could also cause a shift vegetative zones across the islands. This is of significant concern for Saint Helena as this change could greatly reduce what remains of the natural cloud forest.

Challenge 4 - Illegal unregulated and unreported (IUU) fishing - Moderate

There is significant poaching by illegal fishing vessels in the exclusive economic zones of the three territories. These have both economic and conservation consequences. Indeed illegal fishers do not stick to rules and agreements, catching species and sizes which are not permitted or use illegal methods which threaten fish stocks or kill seabirds.

Tristan da Cunha has achieved a Marine Stewardship Council for its valuable crayfish fishery. The territory sticks rigorously to a self-imposed quota (total allowable catch, TAC), which it can take very quickly. The fishing industry, and the revenues and exports generated are therefore completely quota-limited. Any illegal fishing reduces stocks, and is therefore directly reflected in the TAC set.

Off Saint Helena and Ascension Island the poachers are not competing with local fishers, but the activity represents forgone revenue in the form of fishing permit fees, and is likely damaging for the size of fish stocks. Ascension has a significant stock of big-eye and yellow-fin tuna and implementing and managing a new fisheries regime is a priority for its government. There is a void of data and fisheries have not been managed, but it is thought to be an IUU fishery operating in the Ascension Island EEZ.

Given the large area of island's marine EEZ and the small local population, enforcement of fisheries regulations, particularly the exclusion of unlicensed foreign vessels, is a major barrier for the development of a sustainable fisheries regime. Fishery patrol is expensive, and the means available to the islands are very limited. They require large capital purchases and on-going running costs are seldom financed by existing funding streams. Revenues raised through local fisheries licensing may offset running costs but are often not sufficient. Patrol vessels are often idle because they are in need of repair for which there is no budget. In the case of Saint Helena, it is hoped that with two locally owned vessels (starting in 2014) from Saint Helena, they will provide data on IUU fishing and act as a deterrent to illegal fishers.

Other environmental issues in the Territory of Saint Helena, Ascension and Tristan da Cunha

Saint Helena also considers as priorities the improvement of water treatment and wastewater sewerage, treatment and release. Main challenge is that infrastructure is old or its coverage is insufficient, and there needs to be a large investment, difficult to mobilise due to competing priorities.

In TdC there is a conflict between agriculture and biodiversity on the main island of Tristan. Because the island is so remote, livestock are important for food security. However, it is evident that free-roaming livestock are having a negative impact on the native vegetation of the island and in some areas, over-grazing is leading to soil erosion. Since 2006, local stocking levels have been reduced, but not sufficiently. The level of stock that could be sustainable is still not known and the population is reluctant to reduce stocking levels without a scientific based justification.

5 Environmental governance

5.1 Constitution

British common law and statutes apply, supplemented by local statutes. The territory of Saint Helena, Ascension and Tristan da Cunha, although being a single territorial group under British sovereignty, is composed of three territories, each administered separately. However, the laws of Saint Helena apply to Ascension and Tristan da Cunha, except where otherwise provided by specific laws made by the Governor. Saint Helena's constitution came into force in 1989. The Governor, appointed by the UK monarch, exercises executive authority. The Governor is advised by an Executive Council and an elected, unicameral Legislative Council. The Executive Council consists of the Governor, three *ex officio* officers, and six elected members of the Legislative Council. A proposed change to the constitution was recently rejected in a consultative poll.

The Governor of Saint Helena is also the Governor of *Ascension Island*. The Governor is represented on AI by an Administrator who is advised on an informal basis by the Island Council. The Island Council consists of seven elected and three *ex officio* members.

Tristan da Cunha is also headed by an Administrator appointed by the Governor of Saint Helena. It is administered by an Island Council. The Administrator usually acts in accordance with advice from the Island Council, which is composed of eight elected members and three appointed members. A general election is held every three years and the Councillor who receives the most votes in the election is also appointed Chief Islander.

5.2 Institutional Framework

Saint Helena

In 2012, the Environmental Management Division (EMD) of Saint Helena Government was established. EMD currently employs 28 staff. EMD focuses on policy and legislation, communication and stakeholder engagement, evidence-based advice, assessment, monitoring, evaluation and enforcement. Its focus is to mainstream environment and climate change within Saint Helena Government and to excel in world class environmental protection. Four sections work within the Environmental Management Division: Environmental Advocacy, Marine Conservation Section, Terrestrial Conservation Section, and Environmental Risk Management.

The Environmental Health section is part of the Department of Health, and is responsible for pest control, sanitation, waste, etc., and includes 4 environmental health officers, 11 pest control operatives and 16 sanitary services orderlies.

Agriculture and fishing fall under the remit of the Agricultural and Natural Resource Division (ANRD) and tourism is dealt with by the Office of the Chief Secretary. The Planning Section of the Legal, Lands and Planning Department has overall responsibility for spatial planning. A Disaster Management Committee involves various relevant departments and is chaired by the Chief of Police.

A survey in October 2012 revealed that there are 162 people on the island across all sectors whose job has an environmental function; of these, 119 were employed by the government and the remaining 43 were employed by the private sector (EAA, 2012).

Ascension Island

The administration on Ascension Island counts with a Conservation department, currently staffed with 12, working on various projects to safeguard and investigating Ascension Island's biodiversity. The Environmental Health is part of the Health Services and is responsible for pest control. There is a Waste Management Department which deals with household waste including hospital hazardous waste and

management of the refuse tip. The Facilities Management service is responsible for buildings and infrastructure upkeep including roads, sewerage, grounds and playgrounds maintenance. It also carries out work for other island "users"[20]. The Fire & Sea Rescue Services are responsible for firefighting, prevention and rescue services on land and inshore waters. There are cooperation arrangements with the UK Royal Air Force and US Air Force who also provide fire services.

Ascension Island Government has established a Fisheries Unit in 2014 to address the current complete lack of control, monitoring, compliance or an observer programme and to enforce a new licencing regimen. Ascension Island is currently extremely data poor with respect to fisheries and oceanography. An understanding of population dynamics, age, growth and reproductive biology of exploited fish species are particularly lacking, as are catch and effort data, and bird by-catch. There are five recognised fisheries on Ascension Island, including a recreational shore fishery, a recreational boat fishery for fish and lobsters, a charter boat sport fishery, a small scale commercial fishery (part-time and full-time fishers) and an offshore licenced tuna longline fishery. There is also thought to be an Illegal, Unreported and Unregulated (IUU) fishery operating in the Ascension Island EEZ. The Conservation Department, in collaboration with the South Atlantic Environment and Research Institute, and support from RSPB and BAS will start a project for 3 marine fisheries scientists to provide the data for an evidence-based approach, as a first step in forming a Fisheries Unit on Ascension Island.

Tristan da Cunha

On Tristan da Cunha, the Tristan Conservation Department (TCD) staffed with 4 is responsible for administering the islands' environmental policies. It is responsible for conservation projects on the islands, wildlife monitoring, providing information to visitors and educating residents about the importance of their wildlife heritage. The Fisheries, Agriculture and Natural Resources Department and the Public Works department deal with the remaining environmental components and with electricity.

5.3 Policy Framework

Saint Helena

The Saint Helena government has drawn up Saint Helena Strategy: Our Vision for the Future, which sets out the priorities for the island, and how its objectives will be achieved. A cornerstone of the strategy is improved access to the island and the commitment to strengthen tourism, and it aims for 20,000 tourists by 2020/2025. The Office of the Chief Secretary monitors the attainment of the objectives.

Saint Helena Government has recently published the 2012/13 – 2021/22 Sustainable Economic Development Plan called *A tourism driven economy: Small Footprint, Huge Step Forward.* According to the plan, a number of visitors, 30,000 per year (500-900 visitors per week), is needed to make Saint Helena financially self-sustaining. This requires just two to three cornerstone tourist developments, serviced by daily flights and an improved island-wide tourism offering. As flights to Saint Helena will always be comparatively expensive (relatively small planes, flying long distances), Saint Helena will have to focus on higher spending visitors to achieve its goals. Good quality locally produced foods that may be attractive for visitors who would be happy to pay a premium for it is within the agriculture policy - increased use of organic fertilizer will be promoted as a mean of improving soil fertility and plant nutrition to enable productivity and quality gains[21].

A Sustainable Development Plan (SDP) 2012/13-2014/15 details the national goals: a vibrant economy providing opportunities for all to participate; strong community and family life; and effective management of the environment. The effective management of the environment comprises the third and final pillar of the Sustainable Development Plan. The environment is one of the island's key selling points

20 Name commonly used in Ascension, where there is no right of abode, to the companies present in the islands.. Nobody is from Ascension, as people can only stay when employed.

21 Saint Helena National Agriculture Policy and Implementation Strategy 2013-2015

and is, therefore, a vital ingredient in the island's tourism offer, while also an important element of health and well-being for residents.

To implement the 3rd National Goal, a National Environmental Management Plan 2012-2022 has been developed. The Solid Waste Management Strategy has become an official SHG strategy in 2012. The Peaks National Conservation Area Management Plan, the Plant Collection, Propagation and Distribution policy; the Research policy; and the Climate Change policy went through a range of consultation periods during 2012/13 and it is planned that these will be formalised in 2014.

A Land Development Control Plan (LDCP) for Saint Helena has been adopted. It specifies permitted uses for all land in the island, and specifies all protected areas. It stresses that permission should not be given to a development judged inconsistent with its policies. The LDCP was intended to strike a balance between conservation and development, allowing the latter to go ahead while preserving Saint Helena's environment, in order to improve the economic, social and environmental well-being of the island and its people. However, it gives the Land Planning and Development Control Agency power to relax any planning requirements if it believes this is "in the public interest".

The solid waste management strategy has started to be implemented and is transforming the way that waste is being managed on the island. Saint Helena government expects that waste management procedures and encouraging local recycling businesses on the island will become best practice for similar sized island communities.

In Saint Helena, a Whale Shark Policy and Marine Underwater Blasting Policy have been developed in 2013/2014. A marine management plan and marine and coastal species action plans are being prepared (expected November 2014). Research to support the marine management plan has identified several new species, which are in the process of being described. It is also expected that by the end of 2014 there will be 14 nature conservation area (NCA) management plans across the island. The NCAs are protected within the Land Planning and Development Control Ordinance as well as in the draft Environmental Protection Ordinance.

Several contingency plans are in place: bulk fuel spillage, marine pollution, explosion, rock fall. These are coordinated by the Disaster Management Committee, chaired by the Chief of Police, and supported by British government advice. Not all equipment needed is in place.

Ascension Island

Ascension Island had a Strategic Plan, the Ascension Island Management Plan, for 2003-08. This includes some of the commitments of the Environment Charter. Ascension Island is producing the first National Biodiversity Action Plan (NBAP) for Ascension Island funded by the Darwin Initiative. The NBAP will be broken down into a series of habitat action plans and species action plans. It is envisaged that the NBAP will guide future conservation work on Ascension, such that all activities undertaken by AIG Conservation Department, external organisations and visiting researchers can be linked to one or more NBAP objectives (e.g. through annual AIG reporting and research permit applications of visiting scientists)[22].

Tristan da Cunha

In Tristan da Cunha a new version of the Biodiversity Action Plan 2006-2010 is currently in preparation and is expected to be published early in 2014. An implementation plan is also in place for the Agreement on the Conservation of Albatrosses and Petrels (ACAP). However, management plans are absent except for Gough and Inaccessible Islands, and a management plan is currently being prepared for Nightingale Island.

22 NBAP will be hosted in an accessible web-based format within the Conservation Department pages of the new AIG website (www.ascension-island.gov.ac/government/conservation/projects/bap/) to allow access to its continual review and update as targets are met, new research becomes available, and new actions are added.

5.4 LEGAL FRAMEWORK

The Territory SHATdC participates in the following MEAs (all 3 territories unless stated otherwise):

MEA	Remarks
Ramsar Convention on Wetlands*	Extended to Saint Helena January 1976. No suitable wetlands for inclusion in the list of wetlands of international importance have yet been designated (to fulfil Article 2.1 of the Convention). Sites have been proposed and are being considered.
Convention on Biological Diversity (CBD)	The CBD was extended to SHATdC in June 1994. Some progress has been made, for example with the designation of protected areas. Management plans will then need to be made.
Bonn Convention on Migratory Species (CMS)	Extended to SHATdC in July 1985. The Environmental Management Division of Saint Helena Government has set up a sightings programme for the seabirds and turtles of Saint Helena (under a recent OTEP-funded project), and also regularly monitor dolphins and whales around the island. (Currently all mammals are protected under the Wildlife Protection Ordinance)
CITES	CITES was extended to SHATdC in August 1976. Saint Helena enacted implementing legislation in 2003. Export permits have been drafted and the Management and Scientific Authorities have been appointed. Ascension Island Government is currently drafting CITES compliant legislation.
Agreement on the Conservation of Albatrosses and Petrels** (ACAP)	The Agreement became effective in Tristan da Cunha in April 2006.
London Convention	Extended to SHATdC in November 1975.
World Heritage Convention	Gough Island has been declared a WH Site and has a wildlife management plan. Inaccessible Island has a similar designation.
Convention on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean	Signed by the UK in April 2001 on behalf of SHATdC

* Applies to Saint Helena only

** Applies to Tristan da Cunha only

Saint Helena

On Saint Helena, species legislation is generally adequate, although it only protects certain taxa, and monitoring provisions are limited. A National Parks Ordinance 2003 was never enacted. New National Conservation Areas (NCAs) have policy background in Land Development Control Plan and are protected within the new Land Planning and Development Control Ordinance. A new Environmental Protection Ordinance is being drafted for consultation in 2014 which will also protect the NCAs and provide more robust protection of the islands flora and fauna. The draft Environmental Protection Ordinance also requires the implementation of a national monitoring programme within one year of adoption. Development control and spatial planning legislation is generally sound and properly implemented, this includes Environmental Impact Assessment.

Item of legislation	Comments or details
Nature conservation legislation	National parks ordinance; forests ordinance; endangered species protection ordinance; plants protection ordinance; birds protection ordinance.
Land Planning and Development Control Ordinance, 2013 (adopted in Feb 2014)	An ordinance to provide for the planning and control of the development of land and buildings.
Environmental Impact Assessment Regulations, 2013 (adopted in Feb 2014)	A regulation which gives greater clarity and strength over the handling of applications for development that may have environmental implications. The General Regulations include the power to impose planning conditions specifically to include environmental mitigation measures and monitoring of their effectiveness.
High Seas Fishing Ordinance 2001 Conservation and Management of Fishery Ordinance 2003 Fishery Limits Ordinance Spear Gun Control	To ensure that Saint Helena and registered fishing vessels comply with International Conservation and Management Measures by Fishing Vessels on the High Seas, adopted by the United Nations in November 1993, and the United Nations Convention on the Law of the Sea, adopted in 1982, relating to the Conservation of Straddling Fish Stocks and Highly Migratory Fish Stocks).
Water and Sanitation, utilities	Utility Services Ordinance (2013) establishes utilities regulatory authority and creates a legal framework to facilitate private sector provision of public utility services. Water Ordinance, Cap.55 (last amended in 2013) regulates water supply and wastewater disposal; Litter-Ordinance, Cap.58

Fishing is only permitted with a licence. The licence may include quotas. Sand pumping and stone quarrying also require a permit, to which conditions may be attached.

Ascension Island

The new Wildlife Protection Ordinance was enacted in October 2013. Under the previous legislation, several introduced species, some of which producing negative effects on the Island's native biodiversity, were given protected status. The new ordinance confers legal protection to many of the rare endemic plants, fish and invertebrates (amongst others). On marine conservation, the ordinance introduces powers to establish closed seasons, quotas, no-take zones and/or prohibited means for extracting marine resources, subject to the necessary research being undertaken to enable informed decision-making. Ascension Island is preparing legal instruments the improvement of its protected areas network. Regulations are currently being drawn for 6 new nature reserves and 1 seabird sanctuary under the NPAs ordinance, encompassing the most important turtle and seabird nesting sites, endemic plant habitat and land crab spawning sites, along with other high value biodiversity features (e.g. endemic shrimp pools). This follows from a policy document entitled 'Improving Ascension Island's Protected Areas Network' submitted to the Island Council in 2013, which has been approved and authorities anticipate that the legislation will be in place before the end of 2014.

Tristan da Cunha

All native species are protected, and protected areas legislation has solid requirements (e.g. there is a general prohibition on non-residents entering nature reserves without a permit). Under the Conservation of Native Organisms and Natural Habitats Ordinance 2006, permits are required for any construction or agricultural or horticultural activity within a nature reserve. However, there is a lack of EIA procedures and it is not possible to appeal decisions – but on the contrary there is a right to comment on proposed declarations of nature reserves. Legislative instruments in Tristan da Cunha include:

Item of legislation	Comments or details
The TdC Fisheries Limits Ordinance 1968	Defines the fishery limits of TdC and regulates fishing within them.
The TdC Conservation Ordinance 1976/1986 and 1997	Protects native plants on Inaccessible and Gough Islands and listed birds and mammals on the main island. On the other islands, all native birds and mammals are protected from capture, molestation and killing by non-residents, except under permit and controls commercial sealing.
Conservation of Native Organisms and Natural Habitats Ordinance 2006	Creates seven new reserves for rockhopper penguins on the main island. This legislation allows TdC to implement the CBD and the Agreement on the Conservation of Albatrosses and Petrels

There is generally a lack of resources for enforcement in SHATdC. In Saint Helena, the EMD has implemented an incident reporting system whereby members of the public can report both positive and negative environmental incidents to EMD for action. Twelve incidents were reported over the 2012/13 financial year all of which were pollution incidents. Of the twelve, six have been resolved satisfactorily, three are still under investigation, EMD has no authority to remove the cause of the complaint for two and one cannot be resolved because no further information was given.

In relation to fishing the governments sometimes make agreements where vessels licensed to fish within their EZ double as surveillance vessels.

5.5 MONITORING

On *Saint Helena* most of the monitoring carried out is for conservation purposes. The Conservation Section carries out bi-annual monitoring on the peaks (cloud forest habitat) of the condition and numbers of specific endemic, indigenous and invasive plants, and the wirebird population, which includes also cat research and rodent monitoring. The Forestry Section monitors the number of trees planted in Crown forests, the land cleared and timber sales. EMD Marine Team undertake monitoring of seabirds throughout the year, and they have been monitoring cetaceans (whales, dolphins and porpoises) since 2003. This is done via boat surveys, land surveys and nest searches. Water from the distribution system is tested regularly for bacteriological contamination, and also for chlorine and pH. There is no formal monitoring of wastewater. If it constitutes a health hazard and this is reported, the Environmental Health Section will monitor. In October 2012, EMD began monitoring the composition by weight of domestic waste disposed of at the landfill site. Statistics are published in the Statistical Year Book, and a State of the Environment Report was produced in 2012.

In addition to ongoing terrestrial and marine conservation baseline monitoring, EMD started an environmental monitoring project in April 2014. The Darwin Plus funded project will collect baseline environmental data for environmental indicators including air quality, noise, water quality (freshwater and coastal), water level, water flow and soil quality. The EMD Marine Conservation team are completing a Marine Biodiversity and Mapping Project in 2014. The project, which has collected a significant amount of new information to baseline the marine environment, will designate Marine Protection Areas around the island and develop associated Marine Management Plans.

Ascension Island has monitoring programmes for green turtles and endemic plant species, seabirds, land crabs and marine life. It will very soon start a project to baseline the marine environment – it can profit from Saint Helena experience.

The Natural Resources Department in *Tristan da Cunha* runs several monitoring programmes for seabird and seal habitats, and programmes will also be developed to monitor other marine life and plant.

5.6 Environmental awareness

Saint Helena

The Education Department on Saint Helena has for many years been very committed to promoting the natural environment. School curricula include environmental health, waste management and recycling, marine conservation (mostly dolphins and whales), including dolphin-watching trips. There is a number of publications about environment. Currently EMD is also committed to increase environmental awareness. EMD issue a monthly environment bulletin in the local media, provide environmental support to local schools and regularly take part in the island radio programmes.

The Saint Helena National Trust, a non-profit, statutory body encompassing all environmental conservation NGOs, was launched in 2002. Its mission is to preserve natural environments and historical monuments. It is also active in education and information, awareness-building and school campaigns. After a start-up grant the NT will be subsidised by the SHG. Other NGOs, the Saint Helena Nature Conservation Group and the Sandy Bay Environmental Centre are increasingly active in the development of conservation and education on the island.

Ascension Island

Environmental awareness is actively promoted on Ascension Island. It has been strengthened by an environmental education project which produced environmental resources for schools, some focusing on island-specific issues and native wildlife. This project also helped to initiate the environment-themed summer school for children that is still being run. Also a campaign was launched to encourage local volunteers to take part in wildlife surveys and monitoring. The outputs have been incorporated into the education delivery system in both islands.

The Ascension Heritage Society is an informal cross-sectorial environmental forum and local voluntary conservation organisation.

Tristan da Cunha

Environmental awareness is enrooted in the TdC life, as visitors and researchers are in small numbers and often do relate to environment. There is a Wildlife news published once a year.

5.7 Finance for the environment

For 2012/13 and 2013/14, the running costs of EMD range to about £ 230,000, with no investment. There is no income generating activities. Terrestrial Conservation and Marine Conservation account for three-quarters of the budget in 2013/14. The Agricultural and Natural Resources Directorate, including forest, fisheries and agriculture has an expenditure of £ 1 million, and generates a revenue of about £ 280,000. Fisheries licenses generate £ 60,000.

Activities relating to utilities have been divested to a 100% Government owned company called "Connect Saint Helena" in 2013/14. However, in 2012/13 the cost of fuel to produce electricity amounted to £ 2.3 million, and remaining cost for electricity production was £ 2.3 million, while the revenue was £ 2.7 million. Renewable energies are thus a need also in this aspect. In 2012/13, 9.13% of the electricity was renewable energy, comprising 867 MWh of wind energy generated and 15 kWh of solar energy generated. The quantity of wind energy produced resulted in the saving of approximately 200,000 litres fuel. An additional 6 wind turbines which were commissioned in early 2014 now produce a combined 20% renewable energy (19% wind from 12 turbines, 1% solar PV).

Investments are usually via grants from the UK government, the European Development Fund or other projects. For larger projects, the territories often request help to JNCC, or DFID.

Ascension Island accounts are not easily accessible, but the government website shows that public

expenditure management is undergoing a reform. Besides the allocated annual budget, the Ascension Island Government provides also some capital bids for funds.

Tristan da Cunha's social and economic organisation is based on equality principles, set out by William Glass in 1817, that have evolved over the years. All Tristan families are farmers, owning their own stock and tending potato patches and settlement gardens around houses built by themselves or by their ancestors. All land is communally owned, and stock numbers are strictly controlled to both conserve pasture and to prevent better of families accumulating wealth. New Immigration policies are being formulated but at the current time, unless you are a Tristanian or married to a Tristanian you are not allowed to buy land or settle on Tristan. Accounts are not accessible but the 2014 opening of year speech the Administrator stated "It will be vital that we can centralise procurement in 2014, reducing cost and waste and diversify our economy even further to ensure the future for the island. (…) We have the water project starting in January - as well two harbour projects – the repair of the south wall as well as further dolos work. We have improvements in the slaughterhouses, supermarket, roads and new storage and maintenance shed and we will continue to push for a decision on the harbour." Tristan da Cunha is financially solvent, has reserves from which to draw to face needs, and has set in place stringent policies to monitor the situation, to ensure the long-term viability of the island.

6 COOPERATION

At the UKOTA, an association of UK OCTs, topics concerning the environment are coordinated by a Saint Helena representative. Additionally, the UK Overseas Territories Conservation Forum (OTCF) networks regularly for all matters pertaining to the environment and conservation. Within the OTCF there is a South Atlantic Working Group (SAWG) covering SHATdC, the Falkland Islands and South Georgia.

The isolation of SHATdC and the fact that the islands are not located in an ACP region complicate regional integration and cooperation. Despite its isolation, SHATdC has however shown interest in the regional integration process and has, for example, sought commercial relations with Namibia.

The UK government has been supporting since 2003, through the OTEP funded jointly by FCO and DFID. Funding has also been available under the Darwin Initiative, a programme funded by DEFRA, the UK environment ministry, to fund projects for protecting biodiversity around the world. The two programmes were fused and became Darwin Plus in 2012. The programme continues to allocate via a competitive process around £2m per year and Saint Helena, Ascension and Tristan da Cunha have been successful in securing some projects. Saint Helena has recently secured £ 300,000 in Darwin Plus funding for a total of 4 new projects starting in April 2014, plus £ 261,000 for the 'Ascension Island Marine Sustainability (AIMS)' project. The territories also receive funding from UK's JNCC initiatives. Most of these projects are biodiversity related. A list of such projects is provided for the 3 island governments in the appendix.

The JNCC OT Research and Training Steering Group is also a key institution supporting SHATdC namely for exchange of information regarding research, best practices, UK Government information updates.

Saint Helena's development increased pace in the context of the airport

Saint Helena is benefiting from diversified projects in its preparation to profit from the airport and increased tourism. Jamestown, Saint Helena's capital, has a long history of rock fall instability which has in the past resulted in loss of life and serious injuries. In August 2008, over 300 tons of rock descended on Jamestown, causing significant damage to property. This issue was addressed by a project, supported by a £ 2.25 million grant from UK Foreign and Commonwealth Office (FCO) and the Department for International Development (DFID). The project identified high-risk locations, designed detailed rockfall protection measures, developed an action plan, trained local personnel, and managed the implementation of pilot projects, such as the construction of a catch fence along the toe of the slopes on both sides of Jamestown.

The EU regards Saint Helena, Ascension and Tristan da Cunha as a single UK Overseas Territory, One consequence of this is that cooperative projects between these islands do not qualify for EU regional funding.

European Union aid to SHATdC from the 6th to the 8th EDF amounts to € 9.7 million. The focal area under the 9th EDF, amounting to € 8.6 M is the development of infrastructure. Under the 10th EDF, SHATdC will receive € 15.5 M. These funds will be disbursed to budget support via policy dialogue, connected to the implementation of the infrastructure plan of Saint Helena and the sustainable development strategies of Ascension Island and Tristan da Cunha. The programme consists of road maintenance and Jamestown harbour improvements in Saint Helena, and road upgrading in Ascension. Tristan da Cunha receives a more diversified support consisting of improvements to the harbour, upgrading water and waste management infrastructure, upgrading the electricity distribution network and assessment of renewable energies potential and strengthening the Fisheries Department through training, the establishment of an inspectorate and enforcement of new lobster fisheries regulations.

The EU supported a South Atlantic Invasive Species Project 2007-2009, including SHATdC, Falkland Islands and South Georgia and South Sandwich Islands which has developed a regional strategy up to 2015[23]. The project was led by the Saint Helena Government and managed by the Royal Society for the Protection of Birds (RSPB). The project aimed to increase regional capacity to reduce the impact of invasive species and to pave the way for a regional early warning system and awareness raising and training activities. The strategy aims at raising the global profile of the South Atlantic UKOTs as: a haven for unique but currently threatened biodiversity; establish a common framework for all invasive species work in the South Atlantic and catalyse regional cooperation on a broader range of issues; place public participation and open communication at the forefront of island invasive species actions; improve coordination, efficiency and effectiveness of OT and UK Government decision-making and clarify responsibilities and functions at Territory and UK levels in relation to invasive species; identify key problem areas to be addressed in relation to invasive species and facilitate prioritisation; leverage efforts in and beyond the region to make best use of limited manpower, capacity and resources to address invasive species issues; and guide regional and local fundraising for invasive species prevention, contingency response capabilities and longer term investments.

The completed strategy identified a budget of around € 10 million to successfully remove invasive species from the islands. This funding has not been available. However, the UK government has provided £ 250,000 for the countries to establish a list of priorities and near £ 100,000 for projects in the field. Some other funds have been secured via Darwin, OTEP and Darwin Plus initiatives, but there continues to be a funding gap to implement the strategy.

23 South Atlantic Invasive Species Strategy and Action Plan, 2010.

The most emblematic regional project was the South Atlantic Invasive Species Project, which is reported slightly differently by the authorities of the different islands, as follows:

As stated by TdC	Invasive Species	South Atlantic Invasive Species Project (2006-2009)	€ 1.9 million (including 5 South Atlantic OTs)	EDF-9 (EU)	Grant
As stated by AI	Biodiversity/ Conservation	South Atlantic Invasive Species Project (2008 – 2010)	EUR 2,120,366	EU funding	Grant with co-funding

Due to the limited human capacity on the islands, particularly in Ascension Island and Tristan da Cunha, there is not much time available to research funding opportunities. Besides, in the case of TdC, time and internet access are major constraints, downloading and filling in application forms is very difficult. Partner organisations such as international NGOs do sometimes help securing funds from different sources. Over the last 10 years small amounts of funding have been provided for environmental projects by Flora and Fauna International, WWF, RSPB, UNDP and the Eden Project.

Due to the remoteness of the territories often on-island technical/managerial government staff are not able to attend meetings related to accessing European funding. LIFE has not been open to UK Overseas Territories until 2014. BEST funds are known, but AI and TdC do not have experience with it, applications could be thought working together with e.g. other South Atlantic Territories and/or JNCC.

There are informal links between Saint Helena and Ascension Island whereby information is exchanged, for example on seabird and turtle issues. The two islands are also collaborating with the Falkland Islands and the British Virgin Islands on seed conservation.

On the regional level, the recently established South Atlantic Environmental Research Institute based in the Falkland Islands, and integrating as well SHATdC and SGSSI will promote deeper links between the different OCTs. One such example is the collaborative data sharing and establishment of a web based GIS portal for environmental data (public and secure access).

7 Conclusions and recommendations

According to representatives of St Helena and Ascension Island, given the remoteness and limited resources, identifying needs on a cross-sectorial theme as environment can sometimes be challenging due to different priorities within an island and between Saint Helena, Ascension Island and Tristan due to different environmental and socio-economic settings. However, there are some key common requirements such as access to clean potable water, good sewerage treatment, improved waste management, invasive species control and increase of renewable energy use.

Because of the scale of Saint Helena, Ascension and Tristan da Cunha there is likely to be a continued requirement for financial and technical support. Usually funds are very short term – which implies that often the root of problems cannot be solved and the problems come back again. A longer-term programme approach would ensure that the full benefit of a project is gained. Although Saint Helena, Ascension and Tristan da Cunha have each one their own government, policies and legislation, they are regarded as one OCT. The cooperation between the three entities is not very strong, but could be strengthened if projects involving the 3 would be considered a regional project and get regional funding.

Goal	Action	Baseline situation Activities	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Invasive species control	Implement the South Atlantic Invasive Species strategy	The EU supported a South Atlantic Invasive Species Project in 2007-2009, including SHATdC, Falkland Islands and SGSSI which has developed a regional strategy up to 2015. There are currently no resources available to maintain staff on Gough Island throughout the year to invasive plant control. A limited workforce on Tristan also restricts the amount of work that can be done at the "top islands".	High Now				
	Activities						
	Continue collaborative long term projects to control invasive species, profiting as well from the South Atlantic Research Institute, based in the Falkland Islands. Involve EU universities and try to mobilise funds for research and development of activities; Perform baseline data collection to identify risks, mitigation and solutions; Mobilise funds (through international awareness and fund raising campaigns) for the implementation of operational plans for the eradication of invasive species (e.g. eradication of mice from Gough Island is estimated £ 4.5 million); Develop biosecurity policy in the different islands.						

Goal	Action	Baseline situation Activities	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Increase public health and pollution control	Improve water and waste services	Wastewater is a problem in Saint Helena and Tristan da Cunha, while solid waste is more of a challenge in Saint Helena and Ascension Island. Saint Helena has a solid waste management strategy, while Ascension Island has a study on possible options to improve waste management.					
	Activities						
	Engage on international agreements for island communities for the trans-boundary shipment of waste to suitable waste management/recycling facilities off island. There is already the special case of Ascension Island, but Saint Helena and TdC still need a solution. Continue to support solid waste management reform in Saint Helena and in Ascension Island. Share experience and solutions with Tristan da Cunha, i.e. complement national effort to further develop recycling and hazardous waste management facilities, including facilities for bioremediation. Organise a structured business dialogue with the stakeholders (public, private, and civil society) and decision makers of each OCT in order to fix realistic waste management plans (ready to be implemented) on different waste streams in order to achieve valorisation of waste, and to manage more efficiently some sorts of hazardous waste. Mobilize funds to improve ailing or inadequate water treatment and distribution networks. Governments should consider this priority, in particular Saint Helena in its aim to attract tourists. Develop water safety plans, catchment management plans, water resource management plans. Develop a national water quality monitoring network (freshwater and coastal waters), installation of flow, level and monitoring equipment. Agricultural water management plans and national water resource management plans (2016).						

<table>
<tr><th>Goal</th><th>Action</th><th>Baseline situation
Activities</th><th>Priority and time frame</th><th>Implementing entity(ies)</th><th>€ and HR Needs</th><th>Risks and Assumptions</th><th>Possible € sources</th></tr>
<tr><td rowspan="3">Blue Growth</td><td>Develop policies for benefiting from the potentialities of the ocean and preserve its habitats.</td><td>Ascension fisheries sector is underdeveloped. On the other extreme TdC got a MSC certificate for rock lobster fisheries. Deep sea shipping poses a threat to Tristan’s environment through incidents like the wrecking of the MS Oliva in 2011. Options to solve this are being investigated by the UK’s FCO. Other potentialities offered by the ocean are not being exploited.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="7">Activities</td></tr>
<tr><td colspan="7">For all the SHATdC territories: develop maritime management plan and fisheries/commercial fishing policy.
Research possible income generating activities linked to the ocean: energy, port and logistics services, ports, etc. Engage public, private and civil society in the discussions.
Harmonize fisheries legislation between the islands to enable further cooperation, and to gain from successful experiences as MSC certification.
Work collaboratively between the territories, and with the corresponding Regional fisheries bodies to find ways of affordably improving the fisheries law enforcement in the EEZ. This could involve collaboration with other South-Atlantic territories which face and are dealing with similar issues, further agreements with licensed fishers to assist with surveillance and possible legislation (for example by making the presence of a fishing vessel without an operating automatic transmitting positioning system an offence, punished also with accessory sanctions).
Develop a sustainable fisheries regime in Ascension Island’s marine EEZ. Technical assistance to devise ways in which it is affordable to patrol the EEZ – particularly in what regards foreign high seas fishing fleet. Increase the number of fisheries Science Officers to work with trawlers/monitor marine environment and enforce quotas etc.
Use of radio beacons on Tristan da Cunha, or through the declaration of an “Area to be Avoided” or a “Particularly Sensitive Sea Area” under International Maritime Organisation rules. This threat is from vessels travelling from South American to Asia, and not calling at Tristan.</td></tr>
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<table>
<tr><th>Goal</th><th>Action</th><th>Baseline situation
Activities</th><th>Priority and time frame</th><th>Implementing entity(ies)</th><th>€ and HR Needs</th><th>Risks and Assumptions</th><th>Possible € sources</th></tr>
<tr><td rowspan="3">Climate change</td><td>Mainstream climate change and disaster risk reduction</td><td>Maybe due to the fact that SHATdC are less affected by climate change than other OCTs, limited actions have been taken.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="7">Activities</td></tr>
<tr><td colspan="7">Engage in environmental baseline data collection and built scenarios;
Develop national disaster management plan, develop contingency plans, and, in Saint Helena, an airport disaster management plan.
Develop climate change policies in the OCTs, including adaptation and mitigation;
Mainstream the integration of climate change, considerations in the Planning policy, transport management planning, energy, farming, etc.;
Develop codes for climate change resilient infrastructure.</td></tr>
</table>

Goal	Action	Baseline situation Activities	Priority and time frame	Implementing entity(ies)	€ and HR Needs	Risks and Assumptions	Possible € sources
Environmental awareness	Increase environmental awareness	Particularly for Saint Helena with the new development expected with the airport, and in line with the sustainable development strategy.					
	Activities						
	Elaborate a programme to improve environmental decision making framework, and environmental mainstreaming into economic development sectors. Elaborate an information, communications and training plan aiming at stakeholder engagement; Develop Green guidelines for business, green business awards; Develop certification schemes; Mainstreaming environment in government and civil society; Establish green guidelines for procurement; Develop eco-tourism; Perform a strategic environmental assessment of the tourism strategy.						

Appendix

Projects in Saint Helena

Area/Topic	Name	Budget	Source(s) of Funding	Type of funding (loan, grant, co-financing)
Birds	Bird tracking of mass boobies and red billed tropic birds	£4,500	ESH	Grant
Environment	Conference attendance	£10,000	JNCC	Grant
GIS	SAERI – South Atlantic GIS	£55,000	JNCC	Grant
Marine	Saint Helena Marine Biodiversity and Mapping Project	£164,000	Darwin	Grant
Birds	BTO Bird Ringing Training	£4,500	JNCC	Grant
Plants	Securing St Helena's rare Cloud Forest trees and associated invertebrates	£98,380	Darwin Plus	Grant
Birds	Taxonomic and conservation status of Oceanodroma storm petrels in the South Atlantic	£43,430	Darwin Plus	Grant
Research	MRes Carbon Sequestration in Community Forests, Saint Helena	£29,867	Darwin Plus	Grant
Monitoring	St Helena Baseline Assessment; A Foundation For Effective Environmental Management	£96,700	Darwin Plus	Grant

Projects in Ascension

Area/Topic	Name	Budget	Source(s) of Funding	Type of funding (loan, grant, co-financing)
Biodiversity/ Conservation	Devising and implementing a Biodiversity Action Plan for Ascension Island (2012 – 2014)	£666,387	Darwin Initiative (£299,480) Co-funding from AIG and international partners (£366,907)	Grant with co-funding
Marine Biodiversity/ Fisheries	Ascension Island Marine Sustainability (AIMS) – A Fisheries and Marine Biodiversity Project (2014 – 2016)	£453,667	Darwin Initiative (£261,087) Co-funding from AIG and international partners (£192,590)	Grant with co-funding
Protected Areas/ Public Outreach	Green Mountain National Park Education and Visitors Centre (2009 – 2011) and Improving Access to Green Mountain National Park (2005 – 2007)	£50,500 + £50,240	Overseas Territories Environment Programme (OTEP)	Grant with co-funding
Biodiversity/ Conservation	Endemic Plants Project (2007 – 2009) and Ecosystem Approach to Plant Conservation (2011 – 2013)	£89,154 + £169,450	Overseas Territories Environment Programme (OTEP)	Grant with co-funding

Projects in TdC

Name	Source(s) of Funding	Type of funding (loan, grant, co-financing)
Eradication of invasive plant (procumbent pearlwort) at Gough Island (2005-2007)	Overseas Territories Environment Programme (UK Government)	Grant
Tristan da Cunha conservation office construction (2005-2007)		
Potential for rodent eradication in the Tristan da Cunha group		
Tristan da Cunha field guide development (2006-2007)		
Managing alien plants on the outer islands (2007-2009)		
Restoration of Sandy Point by removal of logan berry (2007-2009)		
Control of alien plants and mice at Gough (2008-2010)		
Preparations for the eradication of mice and Sagina from Gough Island (2009-2012)		
Participatory management plans for Gough and Tristan da Cunha (2009-2010)		
Integrated Biodiversity Management Planning on Tristan da Cunha (2010-2013)		
Geo-referenced baseline vegetation survey to allow future monitoring of environmental change (2011-2012)		
Clearing alien plants from Tristan da Cunha and Gough Island (2011-2014)		
South Atlantic wilderness: Assessment of Tristan da Cunha's seabed diversity	Darwin Challenge	Grant
Sustainable Management of the marine environment and resources of Tristan da Cunha	Darwin Plus, RSPB, Tristan government	Grant & co-finance
Empowering the people of Tristan to implement the CBD	Darwin	Grant & co-finance
Empowering the people of Tristan to implement the CBD in the marine environment	Darwin follow-up	Grant & co-finance
Atlantic yellow-nosed albatross survey (2013-2015)	Darwin Plus	Grant