



Addressing Climate Change by Promoting  
Low Carbon Climate Resilient Development  
in the UK Overseas Territories

Needs Assessment:  
Ascension Island

Department for International Development

July 2012

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## Background and Purpose

### Introduction

This report forms one of a suite of 16 individual needs assessments of the UK Overseas Territories (UKOTs) produced as part of the process of developing a DFID/FCO led cross HMG programme design to address climate change by promoting low carbon climate resilient development in the UKOTs. The purpose of this assignment was to identify the scope and best way to deliver an appropriate climate change programme for all UK OTs and develop a business case for it (contract duration Feb – June 2012).

The purpose of the reports was to provide a rapid synthesis of information contained within available documentation and frame this in a way which: helped to establish a clear rationale for a generic framework forming one business case for the UK OTs but not allowing this to exclude targeted and selective action to meet specific needs. They were also designed to provide an evidence base for the later comparative analysis across OTs and subsequent prioritisation of different approaches for the business case, which was going to be designed later in the consultancy.

It was agreed in May 2012 by the client and the consulting team that the contract was not fully deliverable as expressed in the original Terms of Reference. Details of the full programme of work and consultation is available in the project Inception Report (29<sup>th</sup> March 2012) and End of Contract Report (11<sup>th</sup> June 2012).

These reports now form a standalone output of the abbreviated consultancy.

### The Reports

The original purpose of the reports still holds and the reader should recognise that the design and level of analysis in this report was set to be achievable within the time available (2 days of evidence gathering, research and writing against over 150 specific data points) and for the original purposes specified and no other. This report provides a general overview to facilitate future potential decision making and does not constitute a comprehensive nor in-depth analytical climate change report.

In a process facilitated by the UK Overseas Territories Association, data content in this report has been reviewed by in-country stakeholders via a nominated point of contact, with feedback incorporated if appropriate.

The report is tailored to the data points required to complete a climate change vulnerability matrix (VAM) tool. The VAM is structured around an understanding of four main issues: the exposure of an OT to climate change (threat analysis); adaptation and resilience; low carbon development and UK exposure. Each issue contains a number of subsets and indicators.

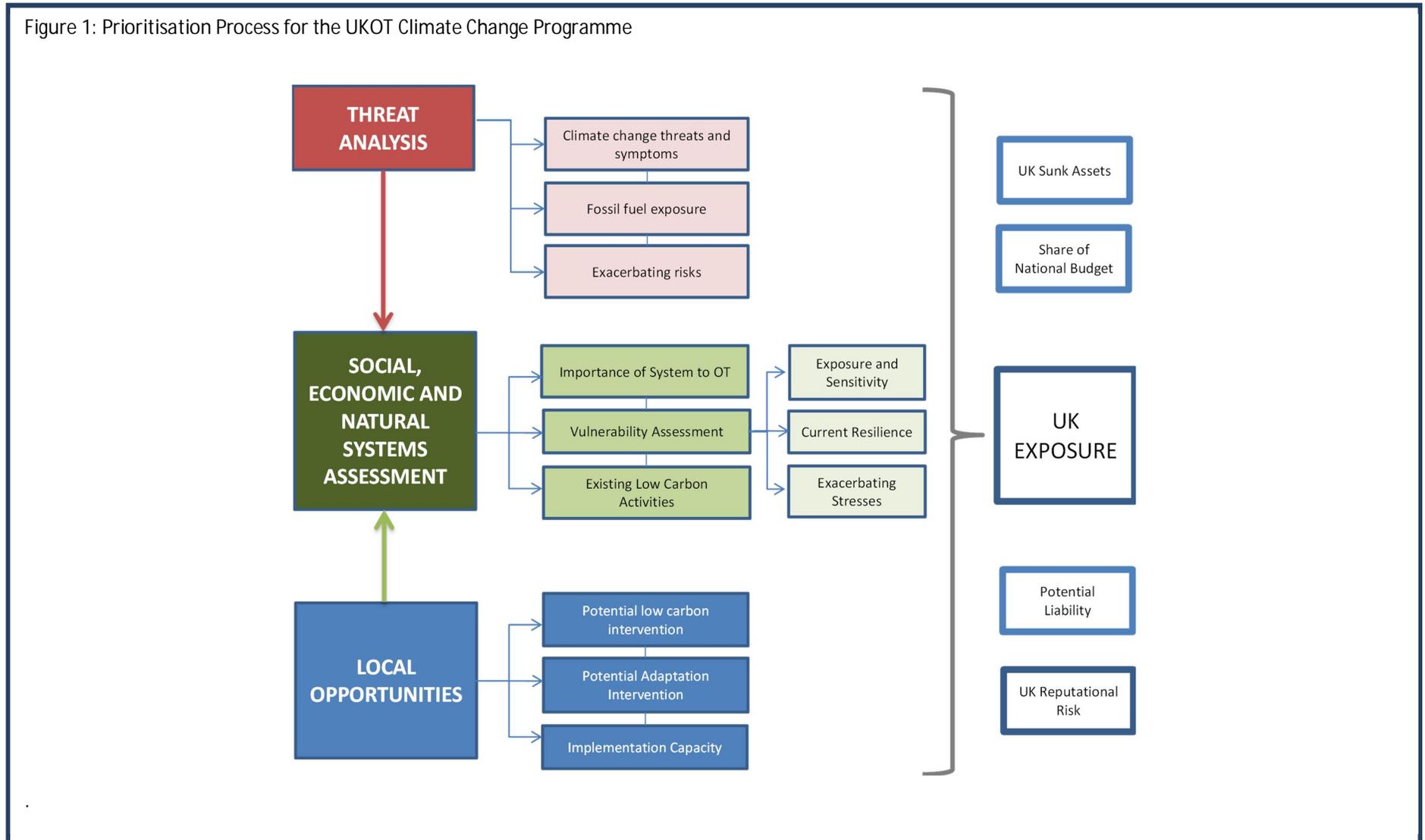
The completed VAM in this report uses a RAG colour coding system to provide a comparative analysis across all of the OTs to feed into the overall programme design. In most cases, data has been included specifically for the later appraisal and business case design process which would have followed.

Attached as annexes to this report are: an associated glossary of terms; a climate change VAM system definitions list; the VAM scoring system (which feeds into the coloured squares in the report text); the scored OT VAM; an initial programme approach table with preliminary sectoral and geographical analysis; and, if relevant, a greenhouse gas emission table.

Figure 1 overleaf illustrates how the data points in the VAM and in this report would have fed into the prioritisation process for a potential UKOT Climate Change Programme and DFID Business Case.

For a full understanding of how the data in this report and the VAM framework has been used, the reader is directed to the programme approaches which are elaborated in the programme Inception Report.

Figure 1: Prioritisation Process for the UKOT Climate Change Programme



# Needs Assessment: Ascension Island



## KEY INDICATORS

Population:	873 (2011)
GDP (\$):	N.A.
Per Capita GDP (\$):	N.A.
ODA Entitled:	Yes
UK Annual Budget Support:	£177,000 (2005/2006)
Value of UK Sunk Assets:	N.A.
Key Economic Sectors:	Military Services; Communication

## Threat Exposure Analysis

### Climate Change Exposure

Together with St Helena and Tristan de Cunha, Ascension Island forms one UK Overseas Territory. Ascension is located in the South Atlantic Ocean and covers 90 sq. km.<sup>1</sup>

Ascension lies on the north flank of the South Atlantic, sub-tropical high, where the Southeast Trade winds prevail throughout the year, averaging 120-150 degrees. The sea temperature around the island varies from 24°C in September to 28°C in March. Air temperatures vary in a similar way, with maximum temperatures peaking around 26°C in September but touching 31°C in March. Despite lying in the tropics, there are definite seasons on Ascension. The hot season, running from January to May, is characterised by dry and sunny weather. Showers are fewer but heavier than in the 'cloudy' season which runs from August to November. In 1985 a thunderstorm brought torrential rains to the island and damaged buildings and roads while in 2001 and 2004 tropical storms developed in the South Atlantic. They are, however, considered as isolated events.<sup>23</sup>

Few observations on potential climate change are currently available for Ascension Island,<sup>4</sup> but it is anticipated that this will change with the installation of a new weather station.<sup>5</sup>

Research points to a strong warming trend in air temperature (2°C in the next 60 years). Increases in sea temperatures and sea level are also expected. Some slight decrease in rainfall is forecast, though rainfall predictions are unclear.<sup>6</sup> The few number of isolated storm events do not make it possible to predict clearly whether such extreme weather events will become the norm in the region in the future.<sup>7</sup>

<sup>1</sup> Brown, N., 2008. *Climate change in the UK Overseas: Territories: An Overview of the Science, Policy and You*. Peterborough, UK: Joint Nature Conservation Committee.

<sup>2</sup> Petit, J. and Guillaume, P., 2008. *Climate Change and Biodiversity in the European Union Overseas Entities*. Gland, Switzerland: IUCN (International Union for Conservation of Nature) Publication Services

<sup>3</sup> MetOffice, 2012. *Ascension Weather*. Private Communication

<sup>4</sup> Petit, J. and Guillaume, P., 2008. *Climate Change and Biodiversity in the European Union Overseas Entities*. Gland, Switzerland: IUCN (International Union for Conservation of Nature) Publication Services

<sup>5</sup> Musick, S., 2008. *Ascension: Small Island Conservation in Context*. Ascension Island: Ascension Island Government Conservation Department

<sup>6</sup> Brown, N., 2008. *Op. cit.*

<sup>7</sup> Petit, J. and Guillaume, P., 2008. *Op. cit.*

## Resource Exposure

On Ascension electricity is provided by diesel generators and wind turbines, whereas drinking water is produced through desalination.

In 2010 the BBC inaugurated five Enercon E-33 330 kilowatt wind turbines to supplement diesel generation through imported diesel. They are able to provide 30% of the electricity needs.<sup>8</sup> Potable water is produced and supplied to the island from a BBC-funded desalination plant provided with a reverse osmosis process<sup>9</sup>.

The US base on Ascension generates its own electricity and water supply. Four 250 kilowatt wind turbines were installed in 1996 and US Air Force invested in additional wind turbines and a 2-MW PV power system in 2010.<sup>10</sup> Potable water is provided at the US base through a desalination plant.<sup>11</sup>

## Adaptation and Resilience

### Importance to OT

#### Importance of System to OT

**Natural Systems:** Much of Ascension's global conservation importance comes from the island's remoteness. It harbours globally important biodiversity, potentially representing a unique assemblage of western and eastern Atlantic flora and fauna.<sup>12</sup> The island hosts 22 plant, 26 invertebrate and 7 fish endemic types. It also has 11 species of breeding seabirds, including the endangered Ascension Frigatebird (*Fregata aquila*). It also hosts the world's largest pseudoscorpion. The island is also home to the second largest nesting population of endangered Green turtles (*Chelonia mydas*) in the Atlantic<sup>13 14</sup> and a small but significant foraging population of the critically endangered hawksbill turtle (*Eretmochelys imbricata*).<sup>15</sup> The island's full biodiversity remains unknown.<sup>16</sup>

The island also hosts two Important Bird Areas (IBAs) and one site has been proposed for Ramsar designation.<sup>17</sup> Moreover, whales, dolphins and porpoises can be seen around Ascension Island.<sup>18</sup>

**Economic Systems:** Ascension Island is economically autonomous thanks to the presence of UK and US military bases<sup>19</sup> and of a number of communication companies, including the BBC and Cable and Wireless.<sup>20</sup>

<sup>8</sup> Ascension Island Government, 2012. About Ascension. [Online] Available at: <http://www.ascension-island.gov.ac/about>. Accessed on 11 July 2012

<sup>9</sup> The Economist, 2010 Correspondents Diary: Ascension Island. [Online] Available at <http://www.economist.com/node/17082686> Accessed on 11 July 2012

<sup>10</sup> Smith, T., S. et al., 2010. *Tradeoffs for Renewable Energy Projects - Environmental, Planning, and Mission Considerations*. Washington DC: US Army Corps of Engineers

<sup>11</sup> The Economist, 2010. Another Green World. [Online] Available at <http://www.economist.com/node/17722704>. Accessed on 11 July 2012

<sup>12</sup> Shallow Marine Surveys Group, 2012. *Marine biodiversity survey of Ascension Island*. [Online] Available at: <http://www.smsg-falklands.org/blog/2012/06/15/marine-biodiversity-survey-of-ascension-island/>. Accessed on 30 July 2012.

<sup>13</sup> Brown, N., 2008. *Op. cit.*

<sup>14</sup> FCO, 2012. *The Overseas Territories – Security, Success and Sustainability*. London: Foreign and Commonwealth Office

<sup>15</sup> UK Overseas Territories Conservation Forum, 2011. *Status of marine turtles of Ascension Island*. [Online] Available at: <http://www.ukotcf.org/infoDB/infoSourcesDetail2.cfm?refID=305>. Accessed on 30 July 2012.

<sup>16</sup> Shallow Marine Surveys Group, 2012. *Marine biodiversity survey of Ascension Island*. [Online] Available at: <http://www.smsg-falklands.org/blog/2012/06/15/marine-biodiversity-survey-of-ascension-island/>. Accessed on 30 July 2012.

<sup>17</sup> Brown, N., 2008. *Op. cit.*

<sup>18</sup> Rayment, M., 2007. *Costing Biodiversity Priorities in the UK Overseas Territories*, GHK, London

<sup>19</sup> Ascension Island Government, 2012. *Cetaceans*. [Online] Available at: <http://www.conservation-ascension-island.gov.ac/cetaceans>. Accessed on 30 July 2012.

<sup>20</sup> Brown, N., 2008. *Op. cit.*

<sup>21</sup> FCO, 2012 a. *South America and South Atlantic Islands – Ascension Island (British Overseas Territory)*. [Online] Available at: <http://www.fco.gov.uk/en/travel-and-living-abroad/travel-advice-by-country/country-profile/south-america/ascension-island/?profile=all>.

Accessed on 30 July 2012.

**Social Systems:** There is no permanent population on the island. The inhabitants of the island (around 1000) comprise the employees and families of the organisations working on the island, mainly coming from St Helena.<sup>21</sup>

## Vulnerability

### Sensitivity to Climate Exposure

**Natural Systems:** The spread of introduced species could be accelerated by warmer temperatures and changes in regional seasonal rainfall patterns. These changes could shift moist habitats making breeding journeys longer and more hazardous, such as for the near endemic land crabs.<sup>22</sup> The predicted rise in sea levels and temperatures will impact the thermally dependent marine turtle species, causing loss of habitat and further skewing sex ratios.<sup>23</sup>

**Economic Systems:** Increased storm severity and changes in the ocean swell could be detrimental to the infrastructure present on the island.<sup>24</sup>

### Current Resilience Activities

Resilience activities can be defined by an ecosystems approach and a range of conservation based initiatives.

Projects for the protection of biodiversity have been funded by several institutions, including DFID, FCO and DEFRA. Among the ongoing projects, *Implementing a Darwin Initiative Biodiversity Action Plan for Ascension Island* aims at improving capabilities applied to the sustainable and equitable management of biodiversity of Ascension Island<sup>25</sup>; *Status of marine turtles of Ascension Island*, funded through OTEP, aims at producing an up-to-date status of marine turtles of Ascension Island and a management plan and at building capacities of Ascension Island Government and community<sup>26</sup>; The *Marine Biodiversity Survey of Ascension Island*, is generating baseline data for future biodiversity conservation and management project on the island<sup>27</sup>.

In June 2005 Green Mountain was designated as a National Park.<sup>28</sup>

Activities in the field of energy supply and use are reported in *Current Abatement Activities*.

### Exacerbating Stresses

The island is of volcanic origin. The 44 distinct craters are dormant with the last major eruption taking place around 600 years ago.<sup>29</sup> Recently, several earthquakes have been registered, including a 5.6 magnitude one that hit the island in May 2012.<sup>30</sup>

Challenges exist for biodiversity conservation on the islands, including the introduction of invasive non-native species and illegal fishing.<sup>31</sup>

<sup>21</sup> Ascension Island Government, 2012. About Ascension. [Online] Available at: <http://www.ascension-island.gov.ac/about>. Accessed on 11 July 2012

<sup>22</sup> Brown, N., 2008. *Op cit*.

<sup>23</sup> UK Overseas Territories Conservation Forum, 2011. *Status of marine turtles of Ascension Island*. [Online] Available at: <http://www.ukotcf.org/infoDB/infoSourcesDetail2.cfm?refID=305>. Accessed on 30 July 2012.

<sup>24</sup> Petit, J. and Guillaume, P., 2008. *Op. cit*.

<sup>25</sup> DEFRA, 2012. The Darwin Initiatives. [Online] Available at: <http://darwin.defra.gov.uk/project/19026/>. Accessed on 30 July 2012

<sup>26</sup> UK Overseas Territories Conservation Forum, 2012. *Status of marine turtles of Ascension Island*. [Online] Available at: <http://www.ukotcf.org/infoDB/infoSourcesDetail2.cfm?refID=305>. Accessed on 11 July 2012

<sup>27</sup> Shallow Marine Surveys Group, 2012. *Marine biodiversity survey of Ascension Island*. [Online] Available at: <http://www.smsg-falklands.org/blog/2012/06/15/marine-biodiversity-survey-of-ascension-island/>. Accessed on 30 July 2012.

<sup>28</sup> Ascension Island Government, 2012 a. *Green Mountain National Park*. [Online] Available at: <http://www.conservation-ascension-island.gov.ac/green-mountain-national-park>. Accessed on 11 July 2012

<sup>29</sup> Ascension Island Government, 2012. *About Ascension*. [Online] Available at: <http://www.ascension-island.gov.ac/about>. Accessed on 30 July 2012

<sup>30</sup> European-Mediterranean Seismological Centre, 2012. *North of Ascension Island*. [Online] Available at: <http://www.emsc-csem.org/Earthquake/earthquake.php?id=265773>. Accessed on 30 July 2012

## Future Opportunities

### Potential Adaptation Interventions

The Conservation Department (see *Implementation Capacity*) conserves Ascension's natural heritage by implementing the Ascension Island Government's commitments to the Environment Charter.<sup>32</sup> Detailed information on potential adaptation intervention was not available.

### Implementation Capacity

The Ascension Island Government funds a Conservation Department to protect the Island's biodiversity with major partners such as the University of Exeter, Kew Gardens and the Royal Society for the Protection of Birds (RSPB) using funding from the UK and Ascension Governments, and the Darwin Fund.<sup>33</sup> Together, the Falkland Islands, St Helena, and Tristan da Cunha have organised themselves into the South Atlantic Co-operation Forum.

NAO (2007) reported that there were difficulties in attracting suitably qualified applicants for senior permanent posts in these Territories.<sup>34</sup>

## Low Carbon Development (Source)

### Current Emissions

#### Share of Current Emissions

Ascension Island is not covered by UK GHG Inventory.<sup>35</sup>

### GHG Abatement

#### Abatement Potential

Unknown.

### Current Abatement Activities

Four 250 kilowatt wind turbines were installed in 1996 by the US Air Force and it invested in additional wind turbines and a 2-MW photovoltaic power system in 2010.<sup>36</sup>

Moreover, in 2010 the BBC inaugurated five Enercon E-33 330 kilowatt wind turbines.<sup>37</sup> The turbines are generating about 205,000 kWh per month. The electricity generated is offsetting 57,500 litres of diesel fuel per

<sup>31</sup> Petit, J. and Guillaume, P., 2008. *Op. cit.*

<sup>32</sup> Ascension Island Government, 2012 b. *About us*. [Online] Available at: <http://www.conservation-ascension-island.gov.ac/about-us>. Accessed on 30 July 2012

<sup>33</sup> FCO, 2012. *Op. cit.*

<sup>34</sup> National Audit Office, 2007. *Foreign Commonwealth Office - Managing risk in the Overseas Territories*. London: The Stationary Office

<sup>35</sup> Petit, J. and Guillaume, P., 2008. *Op. cit.*

<sup>36</sup> Smith, T., S. et al., 2010. *Tradeoffs for Renewable Energy Projects - Environmental, Planning, and Mission Considerations*. Washington DC: US Army Corps of Engineers

<sup>37</sup> Ascension Island Government, 2012. *About Ascension*. [Online] Available at: <http://www.ascension-island.gov.ac/about>. Accessed on 11 July 2012

month. Annual diesel costs have been reduced by an estimated £500,000 and annual carbon emissions have been cut by about 3,500 tonnes.<sup>38</sup>

## Future Opportunities

### Potential LCD Intervention

Plans for building additional wind turbines and photovoltaic systems are ongoing on the island.<sup>39</sup>

### Implementation Capacity

NAO (2007) reported that there were difficulties in attracting suitably qualified applicants for senior permanent posts in these Territories.<sup>40</sup>

## UK Exposure

### UK Sunk Assets

Information on UK sunk assets was not available for Ascension Island. 'User' organisations based on the island, mainly communication companies, financed all non-military activities on the island until 2001/2.<sup>41</sup>

### Absolute Value of UK Transfer

FCO allocated £177,000 to Ascension Island in 2005/2006.<sup>42</sup> The budget spent by DFID to support projects in Ascension Island decreased between 2008 and 2010. In 2010 it was limited to £10,000.<sup>43</sup>

### Share of National Budget from UK Transfer

Precise information on the share of the Ascension budget coming from UK transfer was not available, but the Island is largely self-sufficient; its total revenue budget for 2007/2008 was £5.54 m.<sup>44</sup>

### Potential Liability

Ascension Island is officially part of the wider overseas territory including St Helena and Tristan da Cunha. This Territory is among the signatories of the following multilateral environmental agreements<sup>45</sup>:

- Convention on Biological Diversity (CBD)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- African-Eurasian Migratory Waterbird Agreement (AEWA)

<sup>38</sup> AEA Technology, 2010. *Case Study – Renewable Power for the BBC on Ascension Island*. [Online] Available at <http://www.aeat.co.uk/cms/assets/SIRS/BBC-Renewable-Power-on-Ascension-Island.pdf> Accessed on 11 July 2012

<sup>39</sup> Smith, T., S. et al., 2010. *Tradeoffs for Renewable Energy Projects - Environmental, Planning, and Mission Considerations*. Washington DC: US Army Corps of Engineers

<sup>40</sup> National Audit Office, 2007. *Op cit*.

<sup>41</sup> FCO, 2012. *Op. cit*.

<sup>42</sup> National Audit Office, 2007. *Op cit*.

<sup>43</sup> DFID, 2012. *DFID Project search*. [Online] Available at: <http://projects.dfid.gov.uk/Default.aspx> [Accessed on 11 July 2012].

<sup>44</sup> FCO, 2012 a. *South America and South Atlantic Islands – Ascension Island (British Overseas Territory)*. [Online] Available at: <http://www.fco.gov.uk/en/travel-and-living-abroad/travel-advice-by-country/country-profile/south-america/ascension-island/?profile=all>. Accessed on 30 July 2012.

<sup>45</sup> DEFRA, 2012. *The Environment in the United Kingdom's Overseas Territories: UK Government and Civil Society Support*. London, UK: DEFRA

- Agreement on the Conservation of Albatrosses and Petrels (ACAP)
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter – the London Convention and the London Protocol
- Ramsar Convention on Wetlands of International Importance
- Vienna Convention for the Protection of the Ozone Layer
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

### Reputational Risks



Ascension has a strategic importance for UK and HMG, hosting both US and UK military and communications assets. Therefore, any failure or disruption in the proper functionality of the bases represents a significant risk to HMG.

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Annex One: UKOT Climate Change Vulnerability Analysis Matrix  
Glossary of Terms

## UKOT Climate Change Vulnerability Analysis Matrix Glossary of Terms

Abatement Potential	(Cost effective) technical potential for reducing emissions within sector.
Absolute GHG Emissions	Annual amount of greenhouse gases (GHG) produced by an Overseas Territory. It is measured as metric tonnes of CO <sub>2</sub> generated per year.
Absolute Value of UK Transfer	Total amount of funding from UK to an Overseas Territory per year.
Adaptation	The extent to which existing initiatives and measures (projects and programmes) are expected to reduce the vulnerability of natural and human systems against actual or expected climate change effects.
Adaptive Capacity	The ability of a social or natural system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change.
Carbon sink	A natural or artificial reservoir that accumulates and stores some carbon-containing chemical compound for an indefinite period. Natural: Absorption of carbon dioxide by the oceans via physicochemical and biological processes and photosynthesis by terrestrial plants. Artificial: include landfill and carbon capture and storage.
Climate Change	A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
Climate Change Impact	Consequences of climate change on social, economic and natural systems without considering adaptation.
Climate Change Exposure	The change in climate with a potential adverse effect on social, economic and natural systems.
Current Abatement Activities	Any action that reduces the emissions or emissions intensity (per unit output) of a given sector on-going or completed in UK Overseas Territories as of March 2012.
Current Resilience Activities	Resilience activities on-going or completed in UK Overseas Territories as of March 2012.
Energy Efficiency	Ratio of energy output of a conversion process or of a system to its energy input: measures taken to reduce demand for energy for the same projected level of development.
Energy Import Dependence	Percentage of energy imported from abroad by the single Overseas Territory.
Exacerbating Stresses	Natural or human factors which in isolation or combination have the potential to lead to a change in the severity or frequency of a climate change threat. This may include inter alia a natural hazard, an extreme weather event, social tension or conflict, demographic trends and population characteristics and institutional and/or societal capacity constraints.
Exposure	The sum of the character, magnitude and rate of climate change variation to which a system is influenced by.
Fossil Fuel Dependence	The percentage of total fuel consumption derived from carbon-based fuels from fossil carbon deposits (including coal, oil, and natural gas) and the percentage of that fuel that is imported.
Frequency and Severity	Occurrence and magnitude of an event in UK Overseas Territories.
Future Opportunities	A territory's ability to reduce greenhouse gas emissions or to enhance carbon sink (Potential LCD Intervention) coupled with its potential to plan adjustment interventions in response to the effects of climate change (Potential Adaptation Intervention).
GHG Abatement (Current)	Potential for reducing emissions within sector coupled with any action already in place that reduces the emissions or emissions intensity of a given sector.

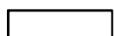
Implementation Capacity	Current (March 2012) capacity to design, implement and monitor all related low carbon / adaptive capacity activities. This includes all current resource constraints (i.e. funding, local personnel capacity, lack of personnel, supportive infrastructure etc.) and opportunities.
Importance of system to OT	The value that society and people in an UK Overseas Territory place on the significance of impacts and vulnerabilities (see Vulnerability) on social, economic and natural systems.
Low Carbon Development (Source)	Actions which include making a contribution towards stabilising levels of CO <sub>2</sub> and other greenhouse gases at a level that will avoid dangerous climate change, through cuts in emissions, demonstrate a high level of energy efficiency, use low-carbon energy sources and/or utilise and enhance carbon sinks.
Magnitude	The area or number of people likely to be affected as a proportion of total population or land area.
Potential Liability	Legal, Financial, Moral and Political exposure arising from the activities of the UK Overseas Territories. This includes UK commitments to legal treaties that extend to the OTs (e.g European Convention on Human Rights) and response to natural and man-made disasters and terrorist events.
Potential LCD Intervention	A territory's ability to reduce anthropogenic CO <sub>2</sub> and other greenhouse gas emissions or to enhance carbon sinks, where ability refers to skills, competencies, fitness and proficiencies that a territory has attained and depends on technology, institutions, wealth, equity, infrastructure and information.
Potential Adaptation Interventions	The potential for a planned intervention which constitutes or contributes to an adjustment in natural, social or economic systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
Reputational Risk	Reputation is defined as the social evaluation of the public towards HMG. Risk is the probability that a failure to act will produce harm to that reputation. This reputation may be defined in terms of the potential: loss of HMG ethical (moral) reputation for safe guardianship of its citizens) disruption or distortion of HMG relationship with its citizens in the OTs withdrawal of private sector investment in UK Overseas Territories (investor flight).
Resilience	The ability of a social or natural system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change.
Resource Exposure	Degree at which a system is influenced by a variation in the availability or the price of resources (specifically water and energy).
Resource Use Efficiency	The effective use of energy and water resources – limiting wastage and maximising usable resources.
Sensitivity to Climate Exposure	Affects the magnitude and/or rate of a climate related perturbation or stress and is the degree to which a system [exposure unit] is affected, either adversely or beneficially, by climate variability or climate change. The effect may be direct (e.g. a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea level rise).
Share of Current Emissions	Percentage of OT's Absolute GHG Emissions generated by each sector.
Share of National Budget from UK Transfer	Percentage and amount (at 2011 prices) of the total Overseas Territory Budget which comes from HMG budgetary support.
System (Social, Economic and Natural)	A set of functionally inter-related elements subdivided into Natural (ecosystems and biodiversity) and Social and Economic (Human) elements.
Threat Exposure Analysis	Identification of the threats that may affect a system and evaluation of their frequency and severity.
UK Exposure	Risk to the UK arising from activities in the UK Overseas Territories. It includes UK Sunk Assets, Share of National Budget from UK Transfer, Potential Liability and Reputational Risk.

UK Sunk Assets	UK investments in physical infrastructure in the Overseas Territories which cannot be recovered.
Vulnerability	The degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity.

Key:



Voice reported in VAM



Additional voice

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Annex Two: UKOT Climate Change VAM Systems Definition

SOCIAL, ECONOMIC AND NATURAL SYSTEMS DEFINITIONS	
Biodiversity and Ecosystems (Marine and terrestrial)	<p>Ecosystems – A community of living (plants and animals) and non-living things (climate, landscape) which interact together and affect each other.</p> <p>Biodiversity – The variety of plant and animal life found in an ecosystem and the variation in their genetic makeup. It is a measure of the health of an ecosystem, with healthy ecosystems having greater variety and variation in plant and animal life than unhealthy ones.</p> <p><i>Source: Brown, 2008<sup>i</sup></i></p>
Hydrology and Water resources	<p>Hydrology - The various systems that are involved in the hydrological cycle (water evaporation, atmospheric circulation of water vapour, cloud formation, precipitation, interception by plant life, land surface runoff, soil infiltrations, groundwater recharge, discharge into streams etc).</p> <p>Water resources – The availability of useful water, often a limiting factor for social and economic development. Sources include groundwater, rainwater and surface reservoirs or rivers.</p> <p><i>Source: Gray, 2010<sup>ii</sup>; Parry et al., 2007<sup>iii</sup></i></p>
Tourism	<p>Comprises the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purpose</p> <p><i>Source: UNWTO, 2011<sup>iv</sup></i></p>
Transportation	<p>A system of conveying people, goods, etc., from one place to another.</p> <p>The definition includes water, air, and land transport.</p>
Agriculture and Fisheries	<p>Agriculture- The science or practise of cultivating the soil and rearing animals</p> <p>Fisheries – The occupation of catching or rearing fish</p>
Forestry	<p>All economic activities that mostly depend on the production of goods and services from forests including commercial activities that are dependent on the production of wood fibre. It also includes activities such as the commercial production and processing of non-wood forest products and the subsistence use of forest products</p> <p><i>Source: FAO, 2004<sup>v</sup></i></p>
Energy Supply and Use	<p>Energy supply - Extraction, conversion, and transportation of fuels and electricity to ultimate end use</p> <p>Energy use - The amount of fuels and electricity utilized during a period of time to provide a useful service such as heating, cooling, or transportation</p> <p><i>Source: Wilbanks et al., 2008<sup>vi</sup></i></p>
Industry and Commerce	<p>Industry - Industry includes manufacturing, mining, construction and related informal production activities. Other categories, such as transport, energy supply &amp; demand and processing of forest products have been included in other sectors.</p> <p>Commerce – Commerce is the exchange or buying and selling of commodities. In our definition it includes trade, retail and other commercial activities.</p>
Human Health	<p>Human health includes physical, social and psychological well-being.</p> <p>Society – Society includes <i>infrastructures, human settlements</i> and <i>social issues</i>.</p> <p><i>Infrastructures</i> are systems designed to meet relatively general human needs, often through largely or entirely public utility-type institutions. <i>Infrastructures</i> for settlements and society include both ‘physical’ (sanitation and communication systems) and ‘institutional’ (shelter, health care, food supply, security and fire services and other forms of emergency protection). <i>Human settlements</i> comprise physical capital (buildings) where most of the world’s population live. <i>Social issues</i> include all the factors relating to human society and its members, concerning the way of life of the local population (livelihoods and welfare).</p> <p><i>Source: Parry et al., 2007</i></p>

HDI/ Livelihoods/ Poverty	<p>HDI (Human Development Index) - A summary composite index that measures a country's average achievements in three basic aspects of human development: longevity, knowledge, and a decent standard of living.</p> <p>Livelihoods - A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living.</p> <p>Poverty – A state or condition in which a person or community lacks the financial resources and essentials to enjoy a minimum standard of life and well-being that is considered acceptable in society.</p> <p><i>Source: Chambers and Conway, 1991<sup>vii</sup></i></p>
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Note: The sectors considered as potential sources of greenhouse gases in the Low Carbon Development section are the ones reported by Department of Energy and Climate Change, 2009<sup>viii</sup>.

<sup>i</sup> Brown, N., 2008. *Climate Change in Overseas Territories: An Overview of the Science, Policy and You*, Peterborough, UK: Joint Nature Conservation Committee

<sup>ii</sup> Gray, G. A. L., 2010. *Montserrat National Climate Change Issue Paper*, Montserrat: Ministry of Agriculture, Land, Housing and the Environment

<sup>iii</sup> Parry, M., Canziani, O. & Palutikof, J. P., 2007. *Climate Change 2007: Impacts, adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, UK: Cambridge University Press.

<sup>iv</sup> UNWTO, 2011. *World Tourism Organisation UNWTO*. [Online] Available at: <http://statistics.unwto.org/en>. [Accessed 12 03 2012].

<sup>v</sup> FAO, 2004: Trends and Current Status of the Contribution of the Forestry Sector to National Economies, Rome: FAO, available on <http://www.fao.org/docrep/007/ad493e/ad493e05.htm>

<sup>vi</sup> Wilbanks T. J. et al., 2008. *Effects of Climate Change on Energy Production and Use in the United States*, Washington, US: US Climate Change Science Programme

<sup>vii</sup> Chambers, R., & Conway, G. (1991). *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. [Online] Available at: <http://www.smallstock.info/reference/IDS/dp296.pdf> [Accessed 28 03 2012].

<sup>viii</sup> Department of Energy and Climate Change, 2009. *5NC - The UK's Fifth National Communication under the United Nations Framework Convention On Climate Change*. London

Annex Three: UKOT Scoring Matrix

## ANNEX III: RAG SCORING FOR UKOT VAM

#		Red	Red/Amber	Amber/Green	Green
<b>Threats Exposure Analysis</b>					
	Exposure: Frequency and Severity of climate effects	Current: High Impact 2050: Impact + Confidence	Current: Medium Impact 2050: Impact + Confidence	Current: Low Impact 2050: Impact + Confidence	Current: No impact 2050: No impact
<b>Resource Exposure</b>					
	Exposure: Fossil Fuel and Energy Import Dependence, Resource Use Efficiency and GHG Emission	High Dependency, Emissions and Low Resource Use Efficiency	Medium Dependency, Emissions and low Resource Use Efficiency	Low dependency, emissions and medium resource use efficiency	Low (or No) dependency, emissions, and high resource use efficiency
<b>Importance to Overseas Territory</b>					
1	Importance of System to OT <i>Natural Systems</i>  <i>Economic Systems</i>	Bio-diversity characterised by high levels of endemic / endangered species and / or territory with internationally recognised environmental designation <sup>1</sup>  Critical levels of water stress  Dominant contribution to OT GDP (>20%)	Bio-diversity characterised by presence of endemic / endangered species and internationally recognised environmental designation  Moderate levels of water stress  Significant contribution to OT GDP (5%-20%)	Bio-diversity characterised by low levels of endemic / endangered species and no internationally recognised environmental designation  Limited levels of water stress  Limited contribution (<5%) to OT GDP	Bio-diversity characterised by very low levels of endemic / endangered species and no internationally recognised environmental designation  No water stress  No contribution (0%) to OT GDP

<sup>1</sup> As identified by IUCN redbook.

#		Red	Red/Amber	Amber/Green	Green
	<i>Social Systems</i>	Per capita GDP (<\$6000)  Low life expectancy / High infant mortality rates	Per capita GDP (\$6001 - \$20000)  Medium life expectancy / Medium infant mortality rates	Per capita GDP (\$20001 - \$50000)  Medium life expectancy / Low infant mortality rates	Per capita GDP (\$50000 +)  High life expectancy / Low infant mortality rates
<b>Vulnerability (Current)</b>					
2.1	Sensitivity to Climate Exposure	High sensitivity to climate change exposure/high potential for irreversible impacts	Medium sensitivity to climate change exposure/medium potential for irreversible impacts	Low sensitivity to climate change exposure/low potential for irreversible impacts	No sensitivity to climate change exposure/no potential for irreversible impacts
2.2	Current Resilience Activities	No resilience planning and/or very limited adaptive capacity	Weak resilience planning and/or adaptive capacity	Moderately effective resilience planning and/or adaptive capacity	Strong resilience planning and/or adaptive capacity
2.3	Exacerbating Stresses	Significant exacerbating stresses	Moderate exacerbating stresses	Limited exacerbating stresses	No exacerbating stresses
<b>Future Opportunities</b>					
3.1	Potential Adaptation Interventions	No technical/programmatic opportunities available.	Limited technical/programmatic opportunities available, and significant work/investment required to develop bankable projects or programmes	Technical/programmatic opportunities exist, but only as pilot projects/strategies and require further investment to develop bankable projects or programmes	Technical/programmatic opportunities exist and bankable investments/projects are available for immediate funding
3.2	Implementation Capacity	No technical, political and financial capacity to	Limited technical, political and/or financial capacity to	Moderate technical, political and/or financial capacity to implement and	Strong technical, political and financial capacity to implement

#		Red	Red/Amber	Amber/Green	Green
		implement and monitor adaptation activities, with full UK input required.	implement and monitor adaptation activities, with significant UK input required.	monitor adaptation activities, with moderate UK input required.	and monitor adaptation activities, with limited UK input required
<b>Current Emissions</b>					
4.1	Share of Current Emissions	High (>30%)	Medium (15%-30%)	Low (5%-15%)	None/Marginal <5%.
<b>GHG Abatement</b>					
5.1	Abatement Potential	No abatement potential  <10%	Limited abatement potential identified  10%-25%	Moderate abatement potential identified  25%-50%	Significant abatement potential identified  E.g. >50% of current levels
5.2	Current Abatement Activities	No low carbon development planning or investment	Weak low carbon development planning and investment	Moderately effective low carbon development planning and investment	Strong evidence of effective low carbon development planning and investment
<b>Future Opportunities</b>					
6.1	Potential LCD Intervention	No technical/programmatic opportunities available.	Limited technical/programmatic opportunities available, and significant work/investment required to develop bankable projects or programmes.	Technical/programmatic opportunities exist, but only as pilot projects/strategies and require further investment to develop bankable projects or programmes.	Technical/programmatic opportunities exist and bankable investments/ projects are available for immediate funding.
6.2	Implementation Capacity	No technical, political and financial capacity to implement and monitor low carbon activities, with full UK input required.	Limited technical, political and/or financial capacity to implement and monitor low carbon activities, with significant UK input required.	Moderate technical, political and/or financial capacity to implement and monitor low carbon activities, with moderate UK input required.	Strong technical, political and financial capacity to implement and monitor low carbon activities, with limited UK input required.

UK Exposure (2012)					
7.1	UK Sunk Assets	>£100m	£20-£100m	£5-£20m	£0-£5m
7.2	Absolute Value of UK Transfer	£500,001 - £1,000,000	£250,001 - £500,000	£100,001 - £250,000	>£100,000
7.3	Share of National Budget from UK Transfer	75%> of national budget for specific system from UK transfer	51% to 75% of national budget for specific system from UK transfer	26% to 50% of national budget for specific system from UK transfer	25%< of national budget for specific system from UK transfer
7.4	Potential Liability	Cost of honouring and implementing legal treaties and other HMG commitments (>£200m)	Cost of honouring and implementing legal treaties and other HMG commitments (>£50m)	Cost of honouring and implementing legal treaties and other HMG commitments (>£10m)	Cost of honouring and implementing legal treaties and other HMG commitments (<£10m)
7.5	Reputational Risks	Irreparable reputational risk in terms of loss of: HMG reputation for safeguarding citizens / climate change and ecosystems; HMG disruption to the relationship with its citizens; and potential to severely disrupt private sector investment in the UKOTs related to specific system.	Serious but not irreparable reputational risk in regards to loss of HMG safeguarding reputation, HMG relationship with citizens or private sector investment related to specific system.	Limited reputational risk in regards to loss of HMG safeguarding reputation, HMG relationship with citizens or private sector investment related to specific system.	No reputational risk in regards to loss of HMG safeguarding reputation, HMG relationship with citizens or private sector investment related to specific system.

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## Annex Four: Ascension Island - Scored VAM

RED
RED/AMBER
GREEN/AMBER
GREEN

Threat Exposure Analysis	
	Frequency and Severity
	Current 2050
Climate Change Exposure	
1 Increase in temperature	Green/Amber
2 Increase/decrease/variability in precipitation	Red/Amber
3 Decrease in snow cover and ice	Green/Amber
4 Heat waves	Green/Amber
5 Heavy precipitation events/floods	Green/Amber
6 Extreme storm events	Green/Amber
7 Rising sea levels	Green/Amber
8 Ocean acidification	Green/Amber

Resource Exposure	Current
1 Fossil Fuel Dependence	Red/Amber
2 Energy Import Dependence	Green/Amber
3 Resource use efficiency	Green
4 Absolute GHG emissions	X

Low Carbon Electricity Resource Potential	Share of Current Electricity Production	Potential
1 Wind	unknown	High
2 Hydro	X	X
3 Solar PV	X	Medium
4 Geothermal	X	X
5 Biomass	X	X
6 Waste (solid, liquid)	X	X
Low Carbon Heat Potential	% of buildings	Potential
1 Solar Thermal	X	X
2 Biomass	X	X
Liquid Fuels	% of consumption	Potential
1 Bioethanol	X	X
2 Bio diesel	X	X

### Ascension Island

Summary
<p>Together with St Helena and Tristan de Cunha, Ascension forms one UK Overseas Territory. Located in the South Atlantic Ocean, it covers 90 sq. km. It hosts both USAF and RAF military bases, as well as a number of communication companies. There is no indigenous or permanent population. Inhabitants comprise the employees and families of the organisations working on the island.</p> <p><b>Threat Exposure Analysis</b>                      Experienced events: two tropical storms in 2001 and 2004. Expected events: air temperatures to increase by 2°C in the next 60 years; rainfall to decrease, but predictions unclear; sea surface temperatures and sea level to increase. Electricity is provided by diesel generators and wind turbines, whereas drinking water is produced through desalination.</p> <p><b>Adaptation and Resilience</b>                      Systems: Presence of 55 endemic species of flora and fauna. Predicted effects include spread of invasive species accelerated by warmer temperatures. Nesting beaches and coastal habitats affected by sea level rise. Infrastructure damaged by increased storm severity. Activities: Green Mountain designated as National Park. Projects for the protection of biodiversity on-going, funded by DFID, FCO and DEFRA. Capacity: Difficulties in attracting suitably qualified staff.</p> <p><b>Low Carbon Development</b>                      Ascension is not covered by UK GHG Inventory. Nine wind turbines supply electricity on the island. There are plans to build additional wind turbines and a photovoltaic system.</p> <p><b>UK Exposure</b>                      Ascension is largely self-sufficient, with limited support from the UK. Together with St Helena, Ascension and Tristan da Cunha are signatories of several multilateral environmental agreements. Strategic importance due to the presence of a military base.</p>

### Additional Potential Classification

- High High levels of cost effective technical potential identified, with strong evidence of associated planning and investment
- Medium Medium cost effective resource potential identified, with medium evidence of associated planning and investment
- Low Limited cost effective technical potential identified, with limited evidence of associated planning and investment
- None No cost effective technical potential identified.
- None No cost effective technical potential identified.

Adaptation and Resilience		Importance to OT	Vulnerability (Current)			Future Opportunities	
		Importance of System to OT	Sensitivity to Climate Exposure	Current Resilience Activities	Exacerbating Stresses	Potential Adaptation Interventions	Implementation Capacity
Natural							
	Biodiversity and Ecosystems					X	
Economic	Hydrology and Water resources					X	
	Tourism					X	
	Transportation					X	
	Agriculture and Fisheries					X	
	Forestry					X	
	Energy Supply and Use					X	

UK Exposure (2012)				
UK Sunk Assets	Absolute Value of UK Transfer	Share of National Budget from UK Transfer	Potential Liability	Reputational Risks
X		X	X	
X		X	X	
X		X	X	
X		X	X	
X		X	X	
X		X	X	
X		X	X	

Low Carbon Development (Source)		Current Emissions	GHG Abatement (Current)		Future Opportunities	
		Share of Current Emissions	Abatement Potential	Current Abatement Activities	Potential LCD Intervention	Implementation Capacity
Energy Supply		X	X			
Transport		X	X			
Public		X	X			
Business		X	X			
Residential		X	X			
Agriculture		X	X			
Waste management		X	X			
Land Use, Land Use Change and Forestry		X	X			

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Annex Five: UKOT Potential Programme Approaches – Preliminary Sectoral and Geographical Analysis

	Programme Approach	Sectoral and OT Relevance		Activities	
		Sectors	OTs	Current	Potential
1	Adaptation: Needs Focus	Energy Supply and Use	Gibraltar	Replacement of power plants with a power station powered by diesel engines.	n/a
2	Adaptation: Effectiveness Focus	Biodiversity and Ecosystems	Bermuda	Bermuda Biodiversity Action Plan - Activity report 2010; The Bermuda Plan 2008	Stringent water conservation practices; environmentally-sound desalination operations; better weather forecasting; coastal zone management plan (building on Draft Planning Statement (2008))
			Gibraltar	Management and Action Plan for the conservation of Sites of Community Importance enforced; Marine Special Area of Conservation designated; Catalogue of living resources; Habitat and Species Action Plans.	Dolphin study; climate change studies.
3	Mitigation: Needs Focus	Energy Supply	Bermuda	Electricity for the entire Island is produced at BELCO's Pembroke location.	Public land/seabed allocated for utility-scale renewable electricity generation projects; generation licences for power producers and comprehensive interconnection standards; quality standards specifically for distributed renewable energy systems included in building codes; expedited planning processes for small-scale renewable generation; efficiency standards; energy auditing.
			Gibraltar	Replacement of power plants with a power station powered by diesel engines.	The use of biofuels to be encouraged by selling at lower price in petrol stations; adopt biofuels for Govt fleet.
		Transport	Gibraltar	New bus transport system introduced; free to children.	Reduction in the energy used for road transport (9% target for 2016); Car park and park and ride bus shuttle service construction planned; Increase in public transport times/routes; More free public transport.
4	Mitigation: Emissions Reduction Potential Focus	Energy Supply	Gibraltar	New power station has the capability to run on biofuels.	Adoption of renewable energy resources: wind, energy from waste and tidal current all considered technically viable.
			Montserrat	2008 Montserrat Sustainable Development Plan; shortly be upgrading its diesel based power station to more reliable 1.5 MW source	Exploitation of geothermal energy is a stated aim of the National Energy Policy; test drilling 2012; Geothermal energy is proved to be feasible, there is potential to generate up to 50MW of energy, with export of around 40MW to a neighbouring island; potential wind turbine sites at locations within the Blakes Estate although the new National Physical Development Plan for North Montserrat 2012-2022 zones this land for residential and recreational tourism;
		Transport	Gibraltar	Use of private vehicles discouraged	Car park and park and ride bus shuttle service constructed; increase in public transport times/routes; more free public transport.
		Business	Montserrat	New port development at Carr's Bay	Development of new town at Little Bay creates potential for incorporation of passive design principles; GoM Infrastructure Plan includes suite of potential low cost measures: energy efficient fans, water pumps, cooking appliances and behavioural change.
		Land Use, Land Use Change and Forestry	Montserrat	2008 Montserrat Sustainable Development Plan; New National Physical Development Plan for North Montserrat	National Physical Development Plan for North Montserrat 2012-2022
5	Mitigation: Effectiveness Focus	Business	BVI	National Tourism Policy & Development Master Plan; strengthening Building Regulations; Climate Change risk management protocols, Disaster Relief Fund, micro insurance schemes and mutual/cooperative insurance schemes, financing options for renewable energy installations.	Climate Change Trust Fund - funds would meet costs associated with diversifying tourism product; sub-regional/domestic emissions trading scheme that will ensure benefits are flowing from the UK and European carbon trading scheme; Carbon Levy on guests of hotels and charter yachts; Climate Change Financial Risk Management Levy on foreign registered companies and ships
		Residential	BVI	A National Physical Development Plan, Local Area Plans	Medium/long term implementation A National Physical Development Plan, Local Area Plans
		Waste Management	BVI	Energy & water conservation/efficiency standards;	n/a
		Land Use, Land Use Change and Forestry	BVI	National Tourism Policy & Development Master Plan; expanded protected areas; building & disaster management criteria; National Physical Development Plan; Local Area Plans	Medium/long term implementation A National Physical Development Plan, Local Area Plans

6	Standardised Policy Focus	Relevant to all sectors	Relevant to all OTs	Possibilities are: FCO sponsored pilot on environmental mainstreaming; Scaling up of FCO approach to	Mainstream climate change into existing policies and plans
7	Capacity Building Focus	Relevant to all sectors	Relevant to all OTs	Possibilities are: BAT: provision fo staff education under the Carbon Reduction Strategy. DFID support via	Prioritise interventions in the draft climate change policy and develop programme of capacity support to take forward
8	Next Step Approach	Relevant to all sectors	Relevant to all OTs	Possibilities are: Falklands: scale up wind farm technologies; Gibraltar: renewable energy legislation.DFID support via the ECACC programme and	Prioritise interventions in the draft climate change policy and develop programme of capacity support to take forward
9	UK Exposure Approach	Biodiversity and Ecosystems	Anguilla	Designation of one nationally protected (wetland) area and allocation of 7.5acre demonstration area for Department of Environment; draft climate change policy drafted and to be adopted in 2012;	Conserve existing wetland (saltpond) ecosystems and encourage wetland migration strategies; approve and implement a National Wetlands Policy; continuous monitoring and development of comprehensive bio-diversity baseline; development of an integrated coastal zone management plan which includes understanding the risk of flooding due to sea level rise and improvements to the national coastal monitoring system and system of beach profile data collection ; implement schemes for re-vegetation and re-nourishing beaches
			BAT	26 Specially Protected Areas and Marine Protected Area designated; Penguin distribution study; Wildlife awareness manual; Toolkit for the management of Protected Areas; Identification of important bird areas; Polar Science for Planet Earth project	Proactive management of key Protected Areas; Continuation of the penguin distribution study
			Falklands	Bio-diversity strategy in place. FIG sponsored environmental research, awareness raising, conservation and management activities. OTEP projects to conserve or collect species or restore plant habitats.	Species monitoring and species action plans in place.
			Montserrat	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention); Vienna Convention for the Protection of the Ozone Layer;	protected areas/zoning; in situ conservation of endemic species and control of invasive species; revise port legislation re discharge; ensure protection of ghauts and vegetative strips and enforce all aspects of land use planning
			Gibraltar	Management and Action Plan for the conservation of Sites of Community Importance enforced; Marine Special Area of Conservation designated; Catalogue of living resources; Habitat and Species Action Plans.	Dolphin study; climate change studies
			SBAs	Special protection Areas designated; Turtle projects; Acacia Control Project	Designation of Special Areas of Conservation; MoU for Conservation of Migratory Birds of Prey in Africa and Eurasia
		Hydrology and Water Resources	Anguilla	New desalination water plant	Water harvesting, increased water storage and more effective maintenance of distribution network to reduce leaks; promote the use of water savings devices (low flush toilets etc); develop and implement national outreach and educational programmes; bring efficiencies to water desalination as technology improves and bring renewable energy sources on stream (wind and solar).
			BAT	Introduction of more efficient reverse osmosis plants; Introduction of water saving flow reduction valves	Implementation of a programme of water efficiency technology changes
			Falklands	n/a	Climate change modelling based on collected data.
			Gibraltar	Modernisation of fresh water distribution (saving of energy during desalination; seawater used for conveyance of sewage and other non-domestic purposes; Replacement of sea defences	Flood defences; Improvement of drainage infrastructure.
			Montserrat	Some adhoc water harvesting, (minidams, roof rainwater harvesting). Many assets not maintained and now in disrepair.	Protect groundwater sources from pollution; develop better water resource management and allocation systems; Opportunity for all new build at Little Bay and Carr's Bay.
			SBAs	n/a	Adoption of Concentrating Solar Power technologies for water desalination

		Tourism	BAT	n/a	Enhancement of UK expertise on tourism management
			Montserrat	Potential investments in the new town at Little Bay and the construction of a new port, if affected, would not reflect well in the international press.	Fiscal incentives to encourage sustainable tourism; integrate mainstream CC issues (impact, responses, opportunities) into tourism development strategy; recommended design speeds increased for new tourism-related structures; enhanced reef monitoring systems to provide early warning alerts of bleaching events, and; artificial reefs or fish-aggregating devices
			Gibraltar	n/a	n/a
		Transportation	SBA	n/a	n/a
			Montserrat	Potential investments in the new town at Little Bay and the construction of a new port, if affected, would not reflect well in the international press.	Integrate CC issues into current port design and the master plan development at Little Bay and other infrastructural development projects.
			Gibraltar	New bus transport system introduced; free to children.	Car park and park and ride bus shuttle service construction planned; Increase in public transport times/routes; More free public transport.
		Energy Supply and Use	Anguilla	n/a	Enhance efficiency of diesel power generation. Link into regional sources of energy arising from potential geothermal networks on Nevis and Montserrat. Customer educational policies to encourage energy efficiency; promote energy efficient technologies such as energy efficient light fittings and solar hot water heaters.
			BAT	Solar heating systems installed at 2 stations; Introduction of sub-metering more effective monitoring of energy consumption; Introduction of LCD screens	Adoption of renewable energy sources: wind turbine and solar photovoltaic systems; Energy efficient retrofits for research ships; use of unmanned aerial vehicles
			Montserrat	2008 Montserrat Sustainable Development Plan; shortly be upgrading its diesel based power station to more reliable 1.5 MW source.	Exploitation of geothermal energy is a stated aim of the National Energy Policy; test drilling 2012; Geothermal energy is proved to be feasible, there is potential to generate up to 50MW of energy, with export of around 40MW to a neighbouring island; potential wind turbine sites at locations within the Blakes Estate although the new National Physical Development Plan for North Montserrat 2012-2022 zones this land for residential and recreational tourism.
			Gibraltar	Replacement of power plants with a power station powered by diesel engines.	The use of biofuels to be encouraged by selling at lower price in petrol stations; adopt biofuels for Govt fleet; Adoption of renewable energy resources: wind, energy from waste and tidal current all considered technically viable.
		Industry and Commerce	BAT	All infrastructures constructed with best practices in low energy design.	n/a
			Montserrat	Potential investments in the new town at Little Bay and the construction of a new port, if affected, would not reflect well in the international press.	n/a
			Gibraltar	n/a	Incentives for import and use of highly efficient equipment.
		Livelihoods/Poverty	Anguilla	n/a	n/a
			Montserrat	Invested heavily in irrigation infrastructure, training of farmers, livestock production units and a farmer's resource centre.	Government is investing in improved fisheries infrastructure and training to improve the quantity, quality and presentation of produce.
			Falklands	n/a	n/a
			Gibraltar	n/a	n/a
		Human Health	Anguilla	n/a	n/a
			Montserrat	n/a	Public education and outreach; forecasting systems for Dengue Fever and other vector-borne diseases.
			Falklands	n/a	n/a
			Gibraltar	n/a	n/a
10	Do Nothing Approach	n/a	n/a	n/a	n/a