



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

Needs Assessment:  
The British Virgin Islands

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 most reports 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.

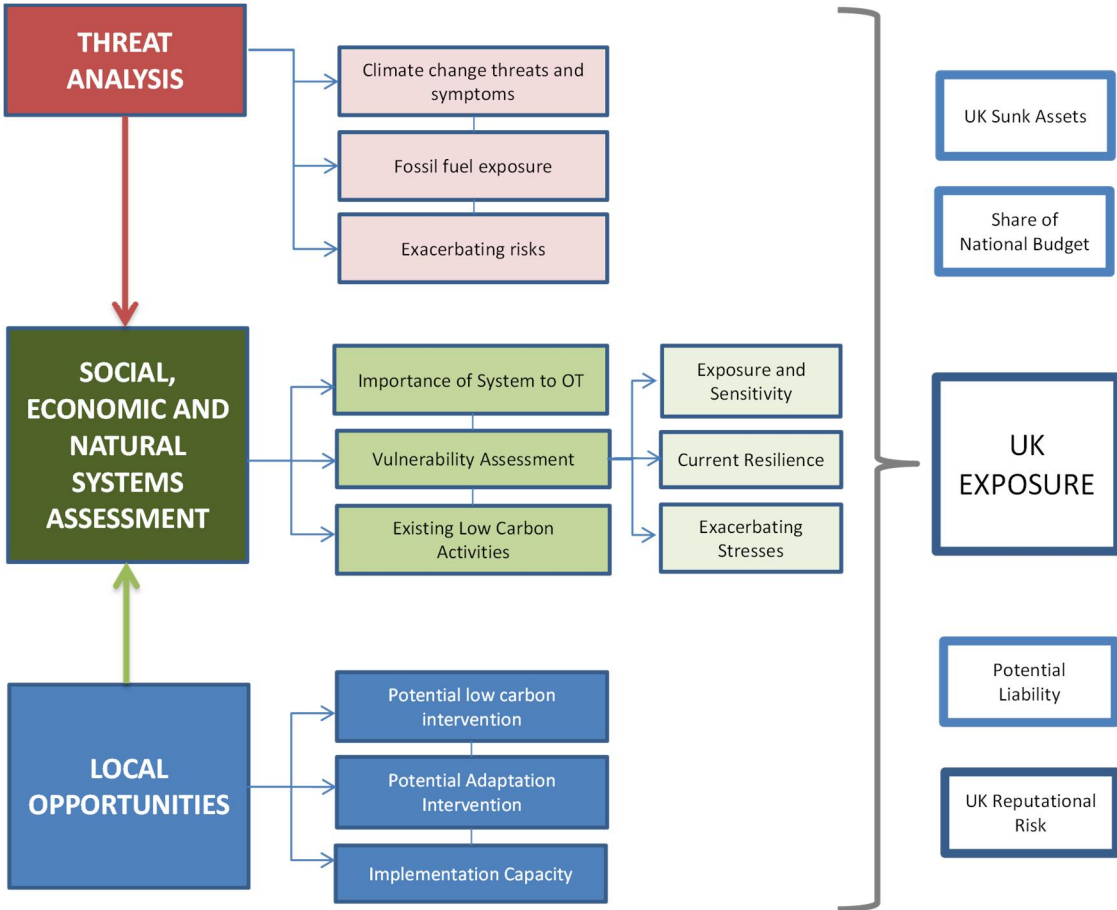
The completed VAM in this report uses a RAG colour coding system to provide a comparative analysis across all of the OTs to feed into the overall programme design. In most cases, data has been included specifically for the later appraisal and business case design process which would have followed.

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: The British Virgin Islands



KEY INDICATORS	
Population:	29,537 (2010 est.) <sup>1</sup>
GDP:	\$1.03 billion (2007 est.) <sup>2</sup>
Per Capita GDP:	\$38,000 (2007 est.)
ODA Entitled:	No
UK Annual Budget Support:	£650,000 (2005-2006).
Value of UK Sunk Assets:	N.A.
Key Economic Sectors:	Tourism, Financial Services

## Threat Exposure Analysis

### Climate Change Exposure

The British Virgin Islands (BVI) comprise over 40 islands, islets and cays with a total land area of only 59 sq. miles scattered over 1,330 sq. miles of sea, just east of Puerto Rico. Sixteen of the islands are inhabited, the largest being Tortola (21 sq. miles), Anegada, Virgin Gorda and Jost Van Dyke. Mainly volcanic in origin, the landscape is rugged and mountainous, excluding Anagada which is flat and made of limestone and coral.

BVI has a tropical climate, moderated by trade winds. In the capital, Road Town, typical daily maxima are around 32 °C (89.6 °F) in the summer and 29 °C (84.2 °F) in the winter. Rainfall averages about 1,150 mm (45.3 in) per year, higher in the hills and lower on the coast. Rainfall can be variable, but the wettest months on average are September to November and the driest months on average are February and March. Hurricanes occasionally hit the islands, with the hurricane season running from June to November.<sup>3</sup>

The location of the BVI at the North Eastern tip of the Caribbean chain places it in the direct path of tropical cyclones that develop in the Atlantic Tropical cyclone basin: between 1852-2010 71 hurricanes and tropical storms passed within 60 nautical miles of the BVI. Between 1960-2010 there has been an increasing trend in the intensity of hurricanes and storms; with an average intensity of 85 mph, 6.5 mph higher than in the former sub-period. At least one system affected the BVI in 44% of the years in the current sub-period, 7% higher than in the former sub-period. These trends suggest that a system of hurricane intensity will affect the BVI roughly once every two years.<sup>4</sup>

<sup>1</sup> FCO, 2012. *The Overseas Territories Security, Success and Sustainability*. [Online] Available at: [www.fco.gov.uk/resources/en/pdf/publications/overseas-territories-white-paper-0612/ot-wp-0612](http://www.fco.gov.uk/resources/en/pdf/publications/overseas-territories-white-paper-0612/ot-wp-0612) [Accessed 12 07 2012].

<sup>2</sup> Carey, N. et al., 2007. *National Audit Office: Managing Risk in the Overseas Territories*, Belfast: TSO.

<sup>3</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands*, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012]

<sup>4</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands*, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012]

Due to both steep slopes and shallow soils, BVI is susceptible to flooding and landslides during heavy rain: these weather events have previously resulted in significant losses for the Islands. BVI has experienced 11 major flood events since 2003; damage from the November 2003 flood saw an average of 20 inches of rain fall in five days, which resulted in total losses, including response/relief costs, rehabilitation costs, and reconstruction costs, estimated at just over \$19 million.<sup>5</sup> Damage from historical category 3 and 4 hurricanes affecting the Islands have ranged from \$10 to \$40 million.<sup>6</sup>

In the Caribbean sub-region as a whole, sea surface temperatures (SST) began to rise from the 1970s and, in certain areas cooling occurred before a sustained rise commenced. The rising trend of SST in the BVI itself is typical of that for the Caribbean sub-region: gradual decline until approximately 1980, followed then by a trend upwards thereafter.<sup>7</sup>

Future projected climate impacts are significant. Under the medium carbon emission scenario the Islands are projected to get 1°C - 5°C (1.8°F - 9°F) warmer and 25% drier by the 2080s,<sup>8</sup> accompanied by a change in rainfall patterns that could result in heavier rain events and thus increase an likelihood of floods.<sup>9</sup> Projections also suggest that there could be a significant 1-2 metre rise in sea levels by the end of this century (2100).<sup>10</sup> Due to its low-lying nature, the island of Anegada is most at risk to the impacts of climate change, the commercial centre at Tortola, also at sea level would also be threatened.<sup>11</sup>

## Resource Exposure

The BVI depend heavily on fossil fuels to drive its service-based economy, maintain critical services, support domestic services, and power the production of desalinated water, which the territory heavily depends upon. Energy consumption and the associated costs of production are also rising in the territory.<sup>12</sup>

## Adaptation and Resilience

### Importance to OT

#### Importance of System to OT

Natural Systems: The biodiversity of the Virgin Islands is strongly influenced by its close geographical relationship with Puerto Rico, with Islands, such as Anegada which having globally important bio-diversity.<sup>13</sup> Vegetation on the Islands is predominantly made up of dry forest and cacti thickets but there are also rainforests on upper slopes of Tortola and Virgin Gorda. BVI supports approximately 45 plant species endemic

<sup>5</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands*, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012]

<sup>6</sup> Burnett Penn, A., 2011. *The Virgin Islands' Climate Change Policy- Achieving Low-Carbon, Climate-Resilient Development*, BVI: Caribbean Community Climate Change Centre.

<sup>7</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands*, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012], p.13

<sup>8</sup> Burnett Penn, A., 2011. *The Virgin Islands' Climate Change Policy- Achieving Low-Carbon, Climate-Resilient Development*, BVI: Caribbean Community Climate Change Centre

<sup>9</sup> Taylor, M. A. et al., 2007. *Glimpses of the future: A briefing from the PRECIS Caribbean Climate Change Project*, Belmopan, Belize: Caribbean Communication Climate Change Centre.

<sup>10</sup> Simpson, D. M. et al., 2008. *Quantification and Magnitude of Losses and Damages Resulting from the Impacts of Climate Change: Modelling the Transformational Impacts and Costs of Sea Level Rise in the Caribbean (Full Document)*, Peterborough, UK: Joint Nature Conservation Committee.

<sup>11</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, p.65

<sup>12</sup> Burnett Penn, A., 2010b. *The Virgin Islands Climate Change Green Paper*, Digital: Conservation and Fisheries Department, Ministry of Natural Resources and Labour at .

<sup>13</sup> Darwin Anegada BAP, 2006. Darwin Initiative Action Plan for the Coastal Biodiversity of Anegada, British Virgin Islands [http://www.kew.org/ucm/groups/public/documents/document/kppcont\\_047388.pdf](http://www.kew.org/ucm/groups/public/documents/document/kppcont_047388.pdf) [accessed 26 July 2012]



to the Puerto Rican bank<sup>14</sup> and an 11 (4%) of Anegada's plants are Puerto Rican Bank endemics.<sup>15</sup> On Anegada, sixteen flora taxa have threatened status, based on the IUCN Red List Criteria, and there are five regionally important breeding seabird colonies.<sup>16</sup>

The archipelago has 380 km<sup>2</sup> of coral reefs range and 580 hectares of mangrove (75% of which found in Anegada): which provide nurseries for young fish, conches, urchins and rock lobsters and are critical to protecting the coasts from erosion. BVI waters also are home to (declining) populations of Leatherbacks, Hawksbill and Green turtles.<sup>17</sup> Humpback whales are reported to migrate off the BVI. Other species which may occasionally be encountered include sei whales and sperm whales. It is also reported that there are 476 species of fish in BVI waters; 342 are reef-associated and 17 species are threatened. Coastal and marine habitats are particularly significant and include salt ponds, mangroves, beaches, seagrass meadows, and coral reefs which are home to an extremely diverse marine wildlife community.<sup>18</sup>

**Economic Systems:** Over the past 30 to 40 years, the BVI economy has evolved from an agriculture/subsistence economy to one based initially on tourism and then on to a combination of tourism and the provision of financial services to the international business community.<sup>19</sup> Tourism and off-shore financial services are the islands major economic sectors on the Islands. Based on the significant natural resources listed above, tourism represents 30% of GDP, while the financial services sector represents 60% of total government revenue.<sup>20</sup>

The largest financial services offshore activity is the registration of International Business Centres (IBCs). It is estimated that \$50 billion of public and private mutual funds are presently administered in BVI. It is also estimated that there are approximately 350,000 active IBCs registered in the BVI, which is assumed to dominate the world IBC market with an estimated 45% share.<sup>21</sup>

To give a wider view of other sectors contribution to the economy, the following table presents the contribution of each sector to GDP in 2008.

Economic Systems	Contribution to GDP (%) (2008)
Real Estate, Renting and Business Activity	29.3
Hotel Restaurants	15.9
Wholesale and Retail Trade	14.1
Transport and Communications	12.4
Construction	6.5
Government Services	6.4
Financial Intermediation	4.5
Education	2.6
Manufacturing, Mining and Quarrying	2.5
Other Community, Social and Personal Services	2.0
Health and Social Work	1.8

<sup>14</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, p.64

<sup>15</sup> Anon., 2011. *Kew Botanical Gardens*. [Online] Available at: <http://dps.plants.ox.ac.uk/bol/BVI> [Accessed 21 March 2012].

<sup>16</sup> Darwin Anegada BAP, 2006. Darwin Initiative Action Plan for the Coastal Biodiversity of Anegada, British Virgin Islands [http://www.kew.org/ucm/groups/public/documents/document/kppcont\\_047388.pdf](http://www.kew.org/ucm/groups/public/documents/document/kppcont_047388.pdf) [accessed 26 July 2012], p.4

<sup>17</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, p.65

<sup>18</sup> Burnett Penn, A., 2011. *Op. cit.*

<sup>19</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean*, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012]

<sup>20</sup> FCO, 2012. The Overseas Territories Security, Success and Sustainability [www.fco.gov.uk/resources/en/pdf/publications/overseas-territories-white-paper-0612/ot-wp-0612](http://www.fco.gov.uk/resources/en/pdf/publications/overseas-territories-white-paper-0612/ot-wp-0612) [accessed 24 July 2012], p.123

<sup>21</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean*, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012], p.9



## Agriculture, Hunting, Forestry and Fishing

0.9

\*The financial services and tourism sectors are not fully represented<sup>22</sup>. In 2008, tourist expenditure was estimated at some \$552.43 million; the industry accounts for a significant percentage of GDP (approx.. 50%) and employment.

**Social Systems:** Per capita GDP in BVI is \$38,500 (2004 est.)<sup>23</sup> and life expectancy is 77.95 years.<sup>24</sup> There are limited fresh water supplies on BVI, with the Islands relying in the main on desalination processes for drinking water.<sup>25</sup>

## Vulnerability

### Sensitivity to Climate Exposure

As with other Caribbean Islands, BVI is critically exposed to the impacts of climate change. While all sectors will be impacted, BVI's tourism sector is the economic sector most at risk from climatic impacts. Key tourist attractions such as the coral reefs and beaches are endangered by the increased frequency of coral bleaching events and tropical storms.<sup>26</sup> The importance of the tourism sector, not only in financial terms but in terms of employment creation, means that the impact for BVI across the economic and tourism sectors is significant.

Given the reported one to two metre rise in sea levels by the end of this century (2100),<sup>27</sup> the island of Anegada would be seriously at risk: a one metre rise would result in 48.5% of its land area being lost and a two metre rise would see a 64.9% loss of land.<sup>28</sup> The commercial centres at Anegada and Tortola, also at sea level would also be threatened.<sup>29</sup>

An assessment of the economic impact of climate change to the BVI coastal and marine sector states alone conservatively estimates that up to 2050, climate change will have a GDP impact (of 2008 GDP levels) ranging from 68%-286% under a high carbon emissions scenario and between 30% to 189%, under a relatively low carbon emissions scenario. Significantly, cumulative losses up to 2050 range from \$671 million to \$2.8 billion. Costs incurred from disaster events are also expected to intensify with climate change.<sup>30</sup>

The *Virgin Islands' Climate Change Policy* reports potential and existing impacts of climate change on the different systems.<sup>31</sup>

<sup>22</sup> Burnett Penn, A., 2010. *Op cit* [Accessed 21 March 2012]

<sup>24</sup> CIA., 2012. <https://www.cia.gov/library/publications/the-world-factbook/geos/vi.html> [Accessed 21 March 2012]

<sup>25</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, p.65

<sup>26</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, p.65

<sup>27</sup> Simpson, D. M. et al., 2008. *Quantification and Magnitude of Losses and Damages Resulting from the Impacts of Climate Change: Modelling the Transformational Impacts and Costs of Sea Level Rise in the Caribbean (Full Document)*, Peterborough, UK: Join Nature Conservation Committee.

<sup>28</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean*, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012], p.9

<sup>29</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, p.65

<sup>30</sup> Bueno, R., Herzfeld, C., Stanton, E. A. & Ackerman, F., 2008. *The Caribbean and Climate Change: The Costs of Inaction*, USA: Stockholm Environment Institute—US Center.

<sup>31</sup> Burnett Penn, A., 2011. *Op. cit.*

System	Climate Change Impact
Biodiversity and Ecosystem	<ul style="list-style-type: none"> <li>- Decline in health and abundance of marine resources</li> <li>- Decline in turtle nesting activity and creation of long-term reproduction issues</li> <li>- Shrinking upland forests and reduction of associated biodiversity</li> <li>- Disruption of bird migration and reproduction patterns. Increased mortality.</li> <li>- Increase in opportunities for establishment of invasive species</li> </ul>
Hydrology and Water Resources	<ul style="list-style-type: none"> <li>- Increase in beach erosion and shrinkage</li> <li>- Shorelines retreating and more vulnerable to flooding</li> <li>- Coral reefs experiencing increased bleaching, structural damage, disease and death</li> <li>- Landward migration or inundation of mangroves and increased mortality</li> <li>- Decreased growth of seagrass beds and increased stress and mortality</li> <li>- Increase in likelihood of flood events</li> <li>- Decreased availability of rainwater leading to greater dependency on the public water supply system and an increased threat of water shortages in emergencies</li> <li>- Increase in cost of desalinated water</li> </ul>
Tourism	<ul style="list-style-type: none"> <li>- Loss of, or more costly damage to, tourism infrastructure and properties</li> <li>- Diminished natural attractions (e.g. coral reefs, beaches and wildlife), resulting in reduced demand by tourists</li> <li>- Rising overheads in energy, water and insurance</li> <li>- Deterrents to travellers (e.g. warmer winters and increased dengue fever outbreaks)</li> <li>- More tourists seeking carbon neutral or energy efficient destinations</li> </ul>
Transportation	<ul style="list-style-type: none"> <li>- Road network (especially coastal) at greater risk of damage</li> </ul>
Agriculture and Fisheries	<ul style="list-style-type: none"> <li>- Decrease in agricultural yield due to decrease in rainwater and soil degradation</li> <li>- Increase in agricultural pests, weeds, diseases and invasive species</li> <li>- Increase in crop damage and disruption of production cycles</li> <li>- Increased stress to livestock, resulting in decreased productivity</li> <li>- Changes in imported food availability, cost, and quality</li> <li>- Loss of critical fish habitat and changes in plankton food resources</li> <li>- Migration of some fish species to cooler waters</li> <li>- Potential changes in spawning opportunities and rates of mortality and disease</li> <li>- Increase in opportunities for establishment of marine invasive species</li> <li>- Increased damage to landing sites, on-shore facilities, boats and equipment</li> </ul>
Energy Supply and Use	<ul style="list-style-type: none"> <li>- Energy generation and distribution system at greater risk of damage</li> <li>- Increase in energy costs. Increase in energy use for cooling.</li> </ul>
Industry and Commerce	<ul style="list-style-type: none"> <li>- Increased insurance rates, potentially leading to uninsured/under-insured properties</li> <li>- Increase in interest rates and difficulty in obtaining construction loans</li> </ul>
HDI/ Livelihoods/ Poverty	<ul style="list-style-type: none"> <li>- Homes and developable lands (especially those in coastal zone) at greater risk of damage</li> <li>- Reduced livelihoods from agriculture, fisheries and tourism</li> </ul>
Human Health	<ul style="list-style-type: none"> <li>- Increase in dengue fever outbreak</li> <li>- Increase in prevalence of ciguatera (fish poisoning)</li> <li>- Increase in respiratory diseases, such as asthma</li> <li>- Increase in risk of diarrhoea and other environmentally transmitted illnesses</li> <li>- Increased potential for heat stress</li> <li>- Increase in risk of damage of health care facilities</li> <li>- Greater threat of epidemics and pandemics</li> </ul>

### Current Resilience Activities

Significant resilience activities are currently on-going or planned in BVI: from the dedicated Department of Disaster Management, to Tsunami and Storm surge modelling, to practice annual disaster scenario response training, to the Disaster Management Act 2003 and a forthcoming Disaster Management Bill.

At the policy and planning level, the BVI Government has undertaken a number of key initiatives in disaster management, these include:

- Establishing the Office of Disaster Preparedness (1990) and supporting its evolution into the present Department of Disaster Management (DDM).
- Establishment of a National Disaster Management Plan.
- Development of the National Integrated Development Strategy (1999).
- Enactment of the Disaster Management Act (2003).
- Development of the Hazard Mitigation & Development Planning Framework (2002).
- Development of the Hazard Mitigation Policy (2003).
- Completion of 2009-2013 CDM Strategy that describes the way forward for implementing a CDM programme for the VI.

Further, the BVI Conservation and Fisheries Department is mandated to oversee and manage all aspects related to the environment. The Department has established routine environmental assessments and monitoring programmes, including:

1. Coastal Resource Inventory: includes mapping through GIS, their natural resources (seagrass, mangroves, coral reefs, beaches, etc.)
2. Turtle monitoring of the Hawksbill, Green and Leatherback Turtles
3. The Red Hind Spawning and Aggregation Project
4. Monitoring of the fisheries: includes identifying species and measuring of size and amount. Lobster is also monitored
5. Water quality is undertaken generally to ensure good quality for swimming
6. Seabird Monitoring
7. Surveillance and Enforcement in the case of compliance guidelines for development as well as to investigate environmental nuisances
8. Beach cleanup of trash and other debris
9. Oil spill cleanups

The Department for Environment and Fisheries has established numerous parks and protected areas.<sup>32</sup> Sites for the protection of biodiversity have been designated or proposed: three Important Bird Areas (IBAs) and a Ramsar Site are located on BVI and two other Ramsar sites have been proposed.<sup>33</sup>

Other specific disaster risk reduction activities carried out in BVI include: studies and retrofitting of shelters, retrofitting of clinics, the mangrove replanting project, rock armouring project, marine shelter project and beach nourishment. There are also disaster contingency plans in place for both the national and community levels. The main components of which include areas that address preparedness, mitigation, response and recovery that reflect comprehensive disaster management. Disaster plans are also updated as needed, and are tested through annual simulation exercises. Lessons learnt coming out of these simulation exercises are then used to update the plans.<sup>34</sup>

More specifically, the British Virgin Islands National Parks Trust over the last twenty years has established a network of more than 400 mooring buoys along the coast to help prevent damage to coral systems and sea grass plantations. In 2005, the hurricane anchoring system was also developed to secure boats in tropical storms, allowing for boats to be safely secured without having to enter the mangrove zone for secure mooring.<sup>35</sup>

<sup>32</sup> Anon., 2011. *Conservation and Fisheries Department*. [Online] Available at: <http://www.bvdef.org/main/content/view/21/58/>

<sup>33</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>34</sup> BVI DDM (2004), National Report and information on Disaster Reduction (British Virgin Islands) for the World Conference on Disaster Reduction British Virgin Islands: Department of Disaster Management [www.unisdr.org/2005/mdgs-drr/national-reports/British-Virgin-Islands-report.pdf](http://www.unisdr.org/2005/mdgs-drr/national-reports/British-Virgin-Islands-report.pdf) [accessed 25 July 2012]

<sup>35</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, p.66

Beyond BVI government initiatives, the UK's Overseas Territories Environment Programme (OTEP) has funded the production of environmental profiles for Anegada and Virgin Gorda.<sup>36</sup> Under OTEP, environmental education programmes were also conducted in 2009-2010 in the BVI.<sup>37</sup>

DFID have also recently funded a project, completed in 2011, aimed at Enhancing Capacity for Adaptation to Climate Change (ECACC) in the UK Caribbean Overseas Territories. ECACC was implemented by the Caribbean Community Climate Change Centre (CCCC).<sup>38</sup> Under ECACC, a Community-based Adaptation to Climate Change project was conducted in the BVI and in particular in the Cane Garden Bay.<sup>39</sup>

BVI is also among the states where the CIDA-funded Caribbean Hazard Mitigation Capacity Building Programme (CHAMP) has been piloted. Its aim is to reduce the vulnerability to the effects of natural hazards the development of national hazard mitigation policies and plans (HMPP), the promotion of hazard mapping and vulnerability assessment (HAZMA) and by promoting safer building practices in the informal building sector through training and certification.<sup>40</sup> A National Hazard Mitigation Policy for the BVI has been produced.<sup>41</sup>

From a planning perspective, amongst other initiatives, BVI's Building Regulations, 1999, emphasise the development of building standards, which would prevent or mitigate damage arising from natural hazards. Also included within the BVI Customs Act, under Caption 104, there are provisions for the exemption of customs duty on specified imported items that aids in the reduction of the impact of disasters (e.g. hurricane shutters). Local insurance companies also offer incentives to homeowners and businesses that have implemented risk reduction measures in their property development.<sup>42</sup>

## Exacerbating Stresses



The BVI has a number of inherent vulnerabilities, these include: the size, relative isolation, concentration of communities and infrastructure, narrow economic base, dependence on natural resources, susceptibility to external shocks and limited financial, technical and institutional capacity.<sup>43</sup> Hurricanes, other tropical weather systems and earthquakes are the most significant natural hazards and the island territory is vulnerable to wind damage, flooding, storm surge, earth tremors and landslides.<sup>44</sup>

Low lying traditional villages are most at risk from the combined threat of sea-level rise and more intense hurricanes and storm surges. Many residences in the villages are uninsured/underinsured and occupied by lower-income families, making these villages less resilient.<sup>45</sup>

<sup>36</sup> Governor's Office, 2011. *Overseas Territories Environment Programme Fund (OTEP): Island resources Foundation (IRF)*. [Online] Available at: <http://ukinbvi.fco.gov.uk/en/news/?view=News&id=610250382>. Accessed on 18<sup>th</sup> July 2012

<sup>37</sup> FCO, 2012. *Strategic Programme Fund – overseas territories*. [Online] Available at: <http://www.fco.gov.uk/en/about-us/what-we-do/spend-our-budget/funding-programmes1/strat-progr-fund/strat-prog-fund-over-territs>. Accessed on 18<sup>th</sup> July 2012

<sup>38</sup> CCCC, 2012. *2007-2011 Enhancing Capacity ofr Adaptation to Climate Change (ECACC) in UK Caribbean*. [Online] Available at: [www.caribbeanclimate.bz/projects/enhancing-capacity-for-adaptation-to-climate-change-ecacc-in-the-uk-caribbean-overseas-territories-project.html](http://www.caribbeanclimate.bz/projects/enhancing-capacity-for-adaptation-to-climate-change-ecacc-in-the-uk-caribbean-overseas-territories-project.html). Accessed on 18<sup>th</sup> July 2012

<sup>39</sup> Burnett Penn, A., 2011 a. *Community-based Adaptation to Climate change: the Cane Garden Bay Example*. British Virgin Islands: Ministry Natural Resources & Labour

<sup>40</sup> Department of Sustainable Development, 2012. *Caribbean Hazard Mitigation Capacity Building Programme (CHAMP)*. [Online] Available at: [www.oas.org/dsd/Nat-Dis-Proj/CHAMP.htm](http://www.oas.org/dsd/Nat-Dis-Proj/CHAMP.htm). Accessed on 18<sup>th</sup> July 2012

<sup>41</sup> CHAMP, 2012. Hazard Mitigation Planning. [Online] Available at: [http://www.cdera.org/projects/champ/mitiplcy/mp\\_bkgnd.shtml](http://www.cdera.org/projects/champ/mitiplcy/mp_bkgnd.shtml). Accessed on 18<sup>th</sup> July 2012

<sup>42</sup> BVI DDM (2004), National Report and information on Disaster Reduction (British Virgin Islands) for the World Conference on Disaster Reduction British Virgin Islands: Department of Disaster Management [www.unisdr.org/2005/mdgs-drr/national-reports/British-Virgin-Islands-report.pdf](http://www.unisdr.org/2005/mdgs-drr/national-reports/British-Virgin-Islands-report.pdf) [accessed 25 July 2012]

<sup>43</sup> Burnett Penn, A., 2010. *The Virgin Islands Climate Change Green Paper - A Snapshot*, BVI: Conservation and Fisheries Department, Ministry of Natural Resources and Labour.

<sup>44</sup> ESL Management Solutions, 2005. *British Virgin Islands: Integration of Disaster Risk Management into the Development Agenda - A best practice case study*. UNDP.

<sup>45</sup> Burnett Penn, A., 2010. *Op cit*

## Future Opportunities

### Potential Adaptation Interventions

Although emitting less than 1% of global greenhouse gases, Caribbean islands have already perceived a need to reallocate resources away from economic development and poverty reduction, and towards the implementation of strategies to adapt to the growing threats posed by global warming.<sup>46</sup> Indeed, specific interventions are going to be implemented in the next years in order to facilitate the transition to climate-resilient in the Virgin Islands.<sup>47</sup> They are summarised in the following table.

Sector	Action
Hydrology and Water Resources	– Expand and enhance the mooring buoy system
	– Approve and enforce specific beach management plans for priority beaches
	– Completing flood risk mapping and modelling exercise
	– Implement strict water conservation and efficiency programmes
Tourism	– Develop, approve and implement a National Tourism Policy and Development Master Plan
	– Enhance the protection, management and amenity base of natural tourist attractions and supporting ecosystems
	– Diversify the base and increase the resilience of the tourism industry by developing and promoting less vulnerable land-based attractions and activities
	– Enact energy and water conservation and efficiency measures in tourism properties
	– Require tourism facilities to develop and implement disaster and Climate Change risk management and business continuity plans
	– Increase coastal setback and elevation of tourism infrastructure/facilities
	– Undertake a national risk mapping exercise to identify critical tourism infrastructure
Transportation	– In highly vulnerable areas, establish “no build areas” for critical tourism infrastructure and properties
	– Developing a mid to long-term plan for the relocation of critical infrastructure located in areas highly vulnerable to Climate Change impacts
Agriculture and Fisheries	– Enhancing local weather monitoring to provide early flood warning notifications
	– Enhance infrastructure for water capture and storage for agricultural purposes
	– Implement an agricultural water conservation and efficiency programme to mainstream best management practices and less water intensive agricultural methods
	– Implement policies to encourage use of traditional cultivars that are adapted to local climate and new species of drought resistant, pest resistant and salt tolerant crops, grasses and legumes as well as drought resistant livestock and poultry
	– Make provisions for hurricane resistant storage facilities for produce and equipment
Energy Supply and Use	– Enhance local weather monitoring and modeling to provide early flood warning systems
	– Allocate the necessary financial resources to enhance the physical structures of the fisheries sector to withstand Climate Change impacts
	– Test and update safety measures and hurricane contingency plans for energy facilities
	– Avoid building new energy infrastructure in vulnerable areas, or with vulnerable designs or materials
Industry and Commerce	– Climate-proof existing/planned fuel terminals and electricity generation/distribution systems to reduce vulnerability to climate threats
	– Plan for the future relocation or retrofitting of electricity generation stations, sub-stations and other facilities that will be inundated by sea level rise or flooded by stronger storm surges
	– Creating financial incentives that extend to consumers to encourage “climate proof” buildings.
Human Health	– Developing and approving specific “climate proof” standards for the construction and maintenance of Government buildings
	– Enhance the emergency response of the health care system in natural disasters and epidemics
	– Strengthen system to transport sick/injured persons in natural disasters
	– Allocate the necessary resources to fully implement and revise plans and strategies to deal with epidemics and pandemics
	– Enhance monitoring of invasive species and capacity of health sector to respond to dangerous invasive species

<sup>46</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands*, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf). [Accessed 24 July 2012]

<sup>47</sup> Burnett Penn, A., 2011. *Op cit*

- Conduct vulnerability assessments of the design and location of existing clinics and proposed polyclinics to natural hazards and relocate and retrofit clinics where necessary
- Strengthen existing health surveillance systems and establish observatories and information centres on Climate Change and health

Adaptation options specifically related to the coastal and marine sectors include: enhancing monitoring of all coastal waters to provide early warning alerts of bleaching and other marine events; introducing artificial reefs or fish-aggregating devices; introducing alternative tourist attractions; providing retraining for displaced tourism workers; and revising policies related to financing national tourism offices to accommodate the new climatic realities.<sup>48</sup>

Interventions for a low carbon development are reported in Potential LCD Interventions.

Further in 2009, OTEP funded the *An Environmental Profile of the Island of Jost Van Dyke, British Virgin Islands*<sup>49</sup> and in 2011 commissioned similar studies on Anegada and Virgin Gorda. These profiles offer a developed information base from which to base sustainable planning decisions.

## Implementation Capacity

The Government comprises six ministries and a collection of specialised departments to administer selected portfolios. In October of 2008 the BVI Premier announced the addition of climate change, global warming, and alternative energy as new responsibilities for the Minister of Natural Resources and Labour. Responsibility for the implementation of BVI's Climate Change Policy rests with the National Climate Change Committee (NCCC) chaired by the Permanent Secretary, Ministry of Natural Resources and Labour.<sup>50</sup>

Moreover, several institutions are active at Caribbean level. In particular, the Climate Change Centre, which became fully operational in 2005 and has the mandate to coordinate the regional response to climate change and its efforts to manage and adapt to its projected impacts.<sup>51</sup>

## Low Carbon Development (Source)

### Current Emissions

#### Share of Current Emissions

The BVI are not covered in the UK GHG inventory.<sup>52</sup>

The latest total annual carbon dioxide emissions reported equals 103,000 metric tons of CO<sub>2</sub>.<sup>53</sup>

<sup>48</sup> UN, 2011. *An Assessment of The Economic Impact of Climate Change on the Coastal and Marine Sector in the British Virgin Islands*, Economic Commission for Latin America and the Caribbean - Subregional Headquarters for the Caribbean, [www.eclac.org/portofspain/noticias/paginas/0/44160/BVI\\_lcarl310.pdf](http://www.eclac.org/portofspain/noticias/paginas/0/44160/BVI_lcarl310.pdf), [Accessed 24 July 2012]

<sup>49</sup> Island Resources Foundation and Jost Van Dykes (BVI) Preservation Society (2009). *An Environmental Profile of the Island of Jost Van Dyke, British Virgin Islands, including Little Jost Van Dyke, Sandy Cay, Green Cay and Sandy Spit*. JVDPS. Jost Van Dyke, British Virgin Islands [www.jvdgreen.org/files/JVD\\_Environmental\\_Profile\\_Final.pdf](http://www.jvdgreen.org/files/JVD_Environmental_Profile_Final.pdf) [accessed 24 July 2012]

<sup>50</sup> Burnett Penn, A., 2011. *Ibid*

<sup>51</sup> Caribbean Community Climate Change Centre (CCCCC), 2007. *Summary Report ECACC Project Launch*. [Online] Available at: [www.doe.ky/wp-content/uploads/2009/04/Final%20Report%20\\_2\\_.pdf](http://www.doe.ky/wp-content/uploads/2009/04/Final%20Report%20_2_.pdf) [Accessed on 12 April 2012]

<sup>52</sup> MacCarthy, J. & Watterson, J., 2010. *Summary of differences between geographical coverages of reported GHG*, Digital: DECC.

<sup>53</sup> UNSTATS, 2011. *Millennium Development Goal Indicators*. [Online] Available at: <http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crd> [Accessed 22 March 2012].



## GHG Abatement

### Abatement Potential

Unknown.



### Current Abatement Activities



The Government of BVI is committed to the introduction of policy that will encourage the use of renewable energy and exploring alternative sources of energy has been declared as a high priority in the governmental workplan.<sup>54</sup> Currently, there are no activities are in place.

## Low Carbon Opportunities

### Potential LCD Intervention



The BVI are committed to converting to low carbon, energy efficient development utilising renewable energy sources (wind, solar), which, based on comprehensive estimates from Anguilla, will require for each of the Islands \$150 million in investments over the next 10 years.<sup>55</sup>

Further LCD actions in the fields of energy supply, transport, public, business, residential and waste management are also foreseen by the *Virgin Islands' Climate Change Policy* and are listed below.<sup>56</sup>

Sector	Action
Energy Supply	<ul style="list-style-type: none"> <li>– Identify available renewable energy sources and technologies that are practical, commercially viable and suited to the local culture and economy</li> <li>– Establish the feasibility of small-scale grid-tie renewable energy integration as implemented at the residential and private sector scale</li> <li>– Require utility accommodation of renewable energy powered grid-interactive inverters</li> <li>– Develop a standard application process to evaluate requests for renewable energy production into the electrical grid by private producers</li> <li>– Increase supply-side energy efficiencies by upgrading the energy infrastructure where necessary</li> <li>– Commission a National Renewable Energy feasibility Study that considers feasibility at the utility scale</li> <li>– Evaluate financial incentive best practices and create a BVI's approach to encourage private and public sector investments in renewable energy technologies</li> <li>– Evaluate the existing revenue model, revise it and ensure it is suitable/ sustainable</li> </ul>
Transport	<ul style="list-style-type: none"> <li>– Revise the relevant legislation to promote the importation and use of smaller, more fuel efficient and alternatively powered vehicles</li> <li>– Create a wide reaching, efficient and dependable national public system</li> <li>– Work with the taxi industry to convert their bus stock to biodiesel</li> </ul>
Public	<ul style="list-style-type: none"> <li>– Promote energy conservation/ efficiency and renewable energy curriculum development throughout all levels of educational system</li> <li>– Adapt climate proofed international building codes to the local context and produce a local supplement with energy efficiency and green building requirements by 2014</li> <li>– Require existing buildings to be retrofitted to meet new energy efficiency standards within a specified time period</li> <li>– Create suitable incentive programmes or revise tariff schemes to encourage greater water and energy conservation and efficiency practices</li> <li>– Promote renewable energy installations on school buildings/ campuses to increase exposure to and learning about renewable energy</li> <li>– Encourage short and long-term programmes for active research, development and training in renewable energy technologies and designs</li> </ul>

<sup>54</sup> Government of the British Virgin Islands, 2012. *Alternative energy sources for BVI explored in Spain*. [Online] Available at: <http://www.bvi.org.uk/government/pressrelease/alternativeenergysourcesforbviexploredinspain>. Accessed on 18<sup>th</sup> July 2012.

<sup>55</sup> Romilly, G. d. B., Penn, A. B. & Lettsome, B., 2011. *Sustainable Financing For Climate Change In The British Virgin Islands*, Digital: Caribbean Community Climate Change Centre.

<sup>56</sup> Burnett Penn, A., 2011. *Op cit*



Business	<ul style="list-style-type: none"> <li>– Encourage use of alternative energy sources (e.g. solar) to power desalination plants</li> <li>– Impose a Carbon levy (Carbon Offset) on tourists that would go towards a Climate Change Trust Fund dedicated to Climate Change Adaptation and Mitigation</li> <li>– Adopt energy efficiency standards and create financial incentives to encourage energy efficient appliances, equipment, building products and materials</li> <li>– Start a solar water heater programme that encourages installation of solar water heaters on all new buildings and retrofitting of existing buildings</li> </ul>
Residential	<ul style="list-style-type: none"> <li>– Adopt energy efficiency standards and create financial incentives to encourage energy efficient appliances, equipment, building products and materials</li> <li>– Start a solar water heater programme that encourages installation of solar water heaters on all new buildings and retrofitting of existing buildings</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>– Commission a waste to energy feasibility plan</li> </ul>

## Implementation Capacity

In addition to the various institutional capacities outlined under *the Potential Adaptation Interventions, Implementation Capacity*, the Department of Environment and Fisheries, under the Ministry of Natural Resources and Labour of the Government of the British Virgin Islands, seeks to manage the natural resources of the BVI in a sustainable manner.<sup>57</sup>

## UK Exposure

### UK Sunk Assets

The value of UK sunk asset is unknown.

### Absolute Value of UK Transfer

In 2005-2006, the FCO budget for BVI was £650,000 (staffing and associate costs).<sup>58</sup> Further, the FCO, through the Overseas Territories Programme Fund (OTPF), supports projects that contribute to the maintenance of stability and security as well as the promotion of accountable government. The main focus of OTPF expenditure in the BVI is devoted to enhancing the capabilities of the Law Enforcement Agencies, including the prison service and the police.<sup>59</sup>

## Share of National Budget from UK Transfer

The BVI 2012 recurrent budget was estimated to be equal to about \$300,000,000.<sup>60</sup> It is unknown what (or if) any of this comes from the UK.

## Potential Liability

The BVIs are signatories of the following multilateral environmental agreements:<sup>61</sup>

- The Convention on Biological Diversity (CBD)
- The Convention on International Trade in Endangered Species (CITES)

<sup>57</sup> Conservation & Fisheries Department, 2012. *About the Department of Environment & Fisheries*. [Online] Available at: <http://www.bvidef.org/main/content/view/full/81/142/> Accessed on 18<sup>th</sup> July 2012

<sup>58</sup> National Audit Office, 2007. *Foreign Commonwealth Office - Managing risk in the Overseas Territories*. London: The Stationary Office

<sup>59</sup> FCO, 2012. *HM Governor's office in the British Virgin Islands*. [Online] Available at: <http://ukinbvi.fco.gov.uk/en/the-british-virgin-islands/> [Accessed 21 03 2012].

<sup>60</sup> Ministry of Finance, 2012. *The Virgin Islands – Recurrent Budget Estimates. 2012* [Online] Available at: <http://www.finance.gov.vg/Economy/MinistryofFinanceBudgetEstimate.aspx>. Accessed on 18<sup>th</sup> July 2012.

<sup>61</sup> DEFRA, 2012. *The Environment in the United Kingdom's Overseas Territories: UK Government and Civil Society Support*. , Digital: DEFRA.

- Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- International Whaling Commission (IWC)
- The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter: The London Convention (LC) and The London Protocol (LP)
- Ramsar Convention on Wetlands of International Importance.
- Vienna Convention for the Protection of the Ozone Layer.
- Montreal Protocol on Substances that Deplete the Ozone Layer

### Reputational Risks

A significant portion of government income is derived from fees for registering International (offshore) companies. In order to secure continued strong performance BVI must maintain its competitive edge through high regulatory standards and modern legislation and balance the demands of international private finance customers against international standards. Any policy and legislative changes must not deter business but also must respond to international pressures to comply with OECD and EU standards.

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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

## 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: The British Virgin Islands - Scored VAM

RED
RED/AMBER
GREEN/AMBER
GREEN

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

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

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

## British Virgin Islands

Summary
<p>The British Virgin Islands comprise over 40 islands, islets and cays with a total land area of only 59 sq miles scattered over some 1,330 sq miles of sea. 16 islands are inhabited, the largest being Tortola (21 sq miles), Anegada, Virgin Gorda and Jost Van Dyke. The islands have limited freshwater resources and rely on rainwater catchments. The BVI's economy is one of the most stable and prosperous in the Caribbean. Population 31,148. GDP: \$1.03 billion (2007 est.) [Per capita: \$38,000 (2007 est.)]</p>
<p><b>Threat Exposure Analysis</b></p> <p>The BVI's natural, economic and social systems will be impacted by rising sea levels, increases air and sea surface temperatures, increasingly drier climate, stronger and more persistent hurricanes and storm surges.</p>
<p><b>Adaptation and Resilience</b></p> <p>The BVI's National Climate Change Policy looks to 'facilitate the transition to climate resilient, low carbon development' across all systems. Implementation is the responsibility of National Climate Change Committee (NCCC).</p> <p>Climate Change impacts are well acknowledged across all systems and adaptation policy directives have been identified and outlined. Appropriate funding has been explored and calls for the establishment of a local Climate Change Trust Fund.</p>
<p><b>Low Carbon Development.</b></p> <p>Funding sources such as Carbon Levies and Climate Change Financial Risk Management Levies would generate US\$15.6 million per year to finance implementation of the Climate Change Policy.</p> <p>Work on the definition of and agreement of: Vision and Objective; sources of funding; and: means of managing the proposed Climate Change Trust Funds should be completed by the end of July 2011, with a view to legally establishing the Trust Fund by September 2011.</p>
<p><b>UK Exposure</b></p> <p>A significant portion of government income is derived from registering International Business Companies. In order to secure continued strong performance BVI must balance the demands of international private finance customers against increasingly demanding international standards. Policy and legislative changes must not deter business.</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.

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						
Economic	Hydrology and Water resources						
	Tourism						
	Transportation						
	Agriculture and Fisheries		X				
	Forestry						
	Energy Supply and Use						
Social Systems	Industry and Commerce						
	HDI/Livelihoods/Poverty Human Health	X				X	X
					X	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
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				
Transport	X	X	X		
Public	X	X	X		
Business	X	X	X	X	
Residential	X	X	X		
Industrial Processes	X	X	X		
Agriculture	X	X	X		
Waste management	X	X	X		
Land Use, Land Use Change and Forestry	X	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	SBAs	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