



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

Needs Assessment:  
Sovereign Base Areas of Akrotiri and  
Dhekelia

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. In the case of the Sovereign Base Areas of Akrotiri and Dhekelia, the consultants have been unsuccessful within the time frame of this assignment in their efforts to engage with local stakeholders.

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.

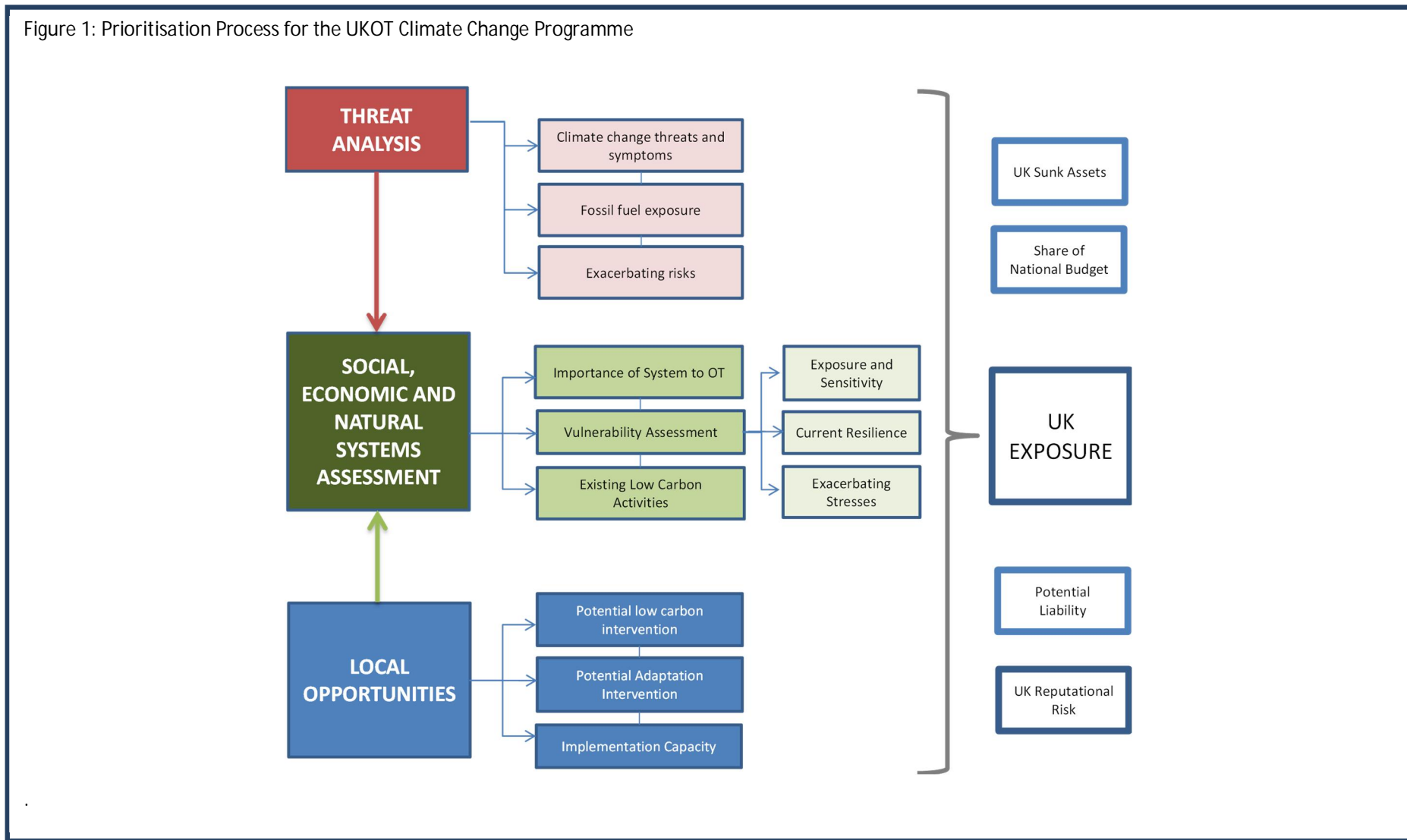
The completed VAM in this report uses a RAG colour coding system to provide a comparative analysis across all of the OTs to feed into the overall programme design. In most cases, data has been included specifically for the later appraisal and business case design process which would have followed.

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: Sovereign Base Areas of Akrotiri and Dhekelia



## KEY INDICATORS

Population:	15,700
GDP:	N.A.
Per Capita GDP:	N.A.
ODA Entitled:	No
UK Annual Budget Support:	£10 million
Value of UK Sunk Assets:	N.A.
Key Economic Sectors:	Military Bases

## Threat Exposure Analysis

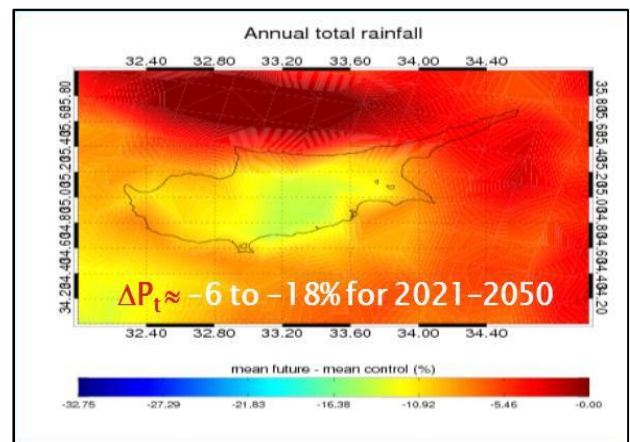
### Climate Change Exposure



The Sovereign Base Areas (SAB) of Akrotiri and Dhekelia in Cyprus cover 98 square miles; 47.5 around Akrotiri, the Western Sovereign Base Area (WSBA) and 50.5 around Dhekelia, the Eastern Sovereign Base Area (ESBA). Macro climatic data for the SABs is common to the whole of Cyprus.

Average temperature has increased by 1°C and average rainfall has fallen by 17% as compared to the period 1901-1930. Periods of drought are becoming longer and more frequent and an increasing propensity for extreme natural phenomena (such as dust suspension and hail storms) has also been observed.<sup>12</sup>

Cyprus will be affected by sea level rise; predictive models indicate this rise will be of the order of 0.4-0.5 m by 2100.<sup>3</sup> The resulting shoreline retreat is likely to range between 40 and 100 metres.<sup>4</sup> Low-lying areas will be at risk of inundation and greater exposure to the effects of storm conditions. Sites of particular risk include the Akrotiri peninsula wetland.<sup>5</sup> An increase in the



<sup>1</sup> Lange, M. A., 2011. *Climate Change and Water Scarcity on Cyprus*. Presented at *Climate Change: A Challenge for Europe and Cyprus Conference*, 27th - 29th November 2009, Nicosia, Cyprus. [Online Available at: [www.cyprus-climate-conference.info/index.php?option=com\\_content&view](http://www.cyprus-climate-conference.info/index.php?option=com_content&view) [Accessed 09 03 2012].

<sup>2</sup> Kikas, A., 2009. *Adapting to climate change in Cyprus with focus on water resources*. [Online] Available at: [www.eurosaiwgea.org/Activitiesandmeetings/OtherEUROSaiwgeameetings/Copenhagen/Documents/2cyprus.pdf](http://www.eurosaiwgea.org/Activitiesandmeetings/OtherEUROSaiwgeameetings/Copenhagen/Documents/2cyprus.pdf). [Accessed 09 03 2012].

<sup>3</sup> Nicholls, R.J. and Hoozemans, F.M.J., 1996. *The Mediterranean: vulnerability to coastal implication of climate change*. *Ocean and Coastal Management*, 31 (2-3), pp. 105-132. In Brochier and Ramieri (2001).

<sup>4</sup> Brochier, F. and Ramieri, E., 2001. *Climate Change Impacts on the Mediterranean Coastal Zones*. Venice, Italy: Fondazione Enrico Mattei.

<sup>5</sup> Parari, M., 2009. *Climate Change Impacts on Coastal and Marine habitats of Cyprus*. Nicosia, Cyprus: Cyprus International Institute for the Environment and Public Health in Association with Harvard School of Public Health.

frequency of extreme weather events is also expected (heat waves and droughts)<sup>6</sup> as part of a general drying trend; rainfall forecasts predict a reduction of between 6% and 18% between 2021 and 2050 over current levels.<sup>7</sup>

## Resource Exposure

Currently, the SBAs import electricity from Cyprus,<sup>8</sup> which itself imports more than 95% of its electricity. This frequently leads to power shortages in both the SBAs and Cyprus. This is most acute in hot summer months. Of the electricity imported in Cyprus, more than 95% is produced by using fossil fuels and only 3% is generated through alternative/ renewable sources<sup>9</sup>. Natural gas deposits have recently been discovered offshore of Cyprus<sup>10</sup>.

Specific data on water consumption in the SBAs are not available, but in Cyprus 62.5 million cubic meters of water were used in 2008. 32.6 million cubic meters were produced through desalination processes that heavily contribute to CO<sub>2</sub> emissions. In 2008 3.3 million cubic meters of water were imported from Greece<sup>11</sup>.

SBAs are not covered by the UK GHG Inventory.

## Adaptation and Resilience

### Importance to OT

#### Importance of System to OT

**Natural Systems:** The wetland system of the Akrotiri Salt Lake and Akrotiri Marsh was designated as a Ramsar wetland site of international importance in 2003 (the most important site on the island of Cyprus), supporting regional and internationally important bird populations. The entire Akrotiri Peninsula has been declared an Important Bird Area and three Special Protection Areas have been designated under the EU Bird Directive (the 'Akrotiri Cliffs', 'Episkopi Cliffs' and 'Akrotiri Wetlands'<sup>12,13</sup>). The salt lake is particularly important, providing a wintering area for up to 30,000 Greater Flamingos and is an important staging area for cranes, migrant waders and birds of prey. Akrotiri's beaches are nesting sites for the endangered IUCN red book listed Green (*Caretta caretta*) and Loggerhead (*Chelonia mydas*) turtles. The flora of the area includes hundreds of plant species, many of which are rare or endemic, such as the endemic orchid *Ophrys kotschy* which is protected under the Bern Convention.<sup>14</sup>

Water resources are critical for the SBAs; Cyprus has the highest level of water stress index in Europe (higher than 60%).<sup>15</sup> Dhekelia hosts one of Cyprus' three desalination plants.<sup>16</sup>

<sup>6</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>7</sup> Lange, M. A., 2011. *Op cit*.

<sup>8</sup> SBA, 2011. *Power Outages in Sovereign Base Areas - Internal Newsbrief for Distribution to BFBS, Internal Messaging on Intranet and Station Commanders for Dissemination*. [Online] Available at: [www.sba.mod.uk/news/201107-NoPower-updated.pdf](http://www.sba.mod.uk/news/201107-NoPower-updated.pdf) [Accessed 09 03 2012].

<sup>9</sup> Trading Economics, 2012. *Fossil fuel energy consumption (% of total) in Cyprus*. [Online] Available at: <http://www.tradingeconomics.com/cyprus/fossil-fuel-energy-consumption-percent-of-total-wb-data.html> [Accessed 09 03 2012].

<sup>10</sup> Panayotou, T., 2011. *Natural gas discovery: a Pandora's Box for Cyprus?* [Online] Available at: <http://www.financialmirror.com/blog-details.php?nid=779> [Accessed 10 03 2012].

<sup>11</sup> Lange, M. A., 2011. *Op cit*.

<sup>12</sup> Draycott, P. D., 2008. *Consultation on the Designation of Special Protection Areas Within The Western Sovereign Base Area*. Sovereign Base Area. [Online] Available at: [http://sba.mod.uk/docs/eco/20100714\\_SPA.pdf](http://sba.mod.uk/docs/eco/20100714_SPA.pdf) [Accessed 13 03 2012].

<sup>13</sup> JNCC (Joint Nature Conservation Committee), 2011. *Overseas Territories and Crown Dependencies Training and Research programme – Work Plan 2010-2012* Peterborough, UK: Joint Nature Conservation Committee

<sup>14</sup> Akrotiri Environmental Education and Information Centre, 2012. *Natural Environment*. [Online] Available at: [www.english.akrotirienviroment.com/Natural-Environment.php](http://www.english.akrotirienviroment.com/Natural-Environment.php) [Accessed 10 03 2012].

<sup>15</sup> Lange, M. A., 2011. *Op cit*.

**Economic Systems:** Economic activities in the SBAs are limited to providing services to the military and their families located in Akrotiri and Dhekelia.<sup>17</sup> RAF Akrotiri and associated infrastructure in WSBA are located in relatively low lying areas on the Akrotiri Peninsula and vulnerable to potential sea level rise<sup>18</sup>.

### Sensitivity to Climate Exposure

The natural systems of the SBAs are particularly susceptible to the potential effects of climate change. The rich biodiversity of the low lying Akrotiri Wetland and other areas on the peninsular are likely to be affected by any potential drying and warming trend and sea level rise which would modify the habitat of a large number of endemic species. Rising sea levels will also have a big impact on the beaches used as nesting sites by endangered turtle species. Already subject to high levels of nutrient pollution, the local marine environment is threatened by rising levels of eutrophication as a consequence of surface temperature rises.<sup>19</sup>

Threats to water resources are a primary concern, as temperature rises and an increased propensity for drought conditions exacerbate existing water shortages.<sup>20 21</sup> Since the SBA's rely on imported water from Cyprus, they may be affected by a potential increase in the salinity of lakes and reservoirs and saltwater intrusion into groundwater sources<sup>22</sup> and by the enhanced saltwater intrusion affecting groundwater sources. In 2008 Cyprus obtained 11.8 million m<sup>3</sup> (1/6<sup>th</sup> of its total) from boreholes. Energy use, entirely based on the import of fossil fuel and already characterised by frequent power cuts during summer, will become even more challenging as temperatures increase and heat waves become more frequent and longer.

Although there is no available data, MOD infrastructure at RAF Akrotiri may be at risk, like other areas of the Peninsula from the effects of sea level rise.

### Current Resilience Activities

In the SBA's resilience activities have been extremely limited and have focused on the protection of the natural systems of the Akrotiri Peninsula.

In 2006 a consultation proposal for the Akrotiri Environmental Management Plan (EMP) was published by the SBA administration.<sup>23</sup> There is no evidence that this EMP has been implemented; it did however, identify climate change, extreme weather events, coastal erosion and the impacts of changes to the hydrological cycle on important wetland biota as key aspects for consideration.

The Akrotiri Environmental Education and Information Centre, established in 2004, play a lead role in promoting awareness in local communities and were nominated for the *2010 Blue Turtle Award* for its significant contribution to the promotion of conservation values in Cyprus. Its main source of funding comes directly from the Sovereign Base Areas Administration.<sup>24</sup>

<sup>16</sup> Neophytou, T., 2009. *Global climate change and Cyprus*. [Online] Available at: [www.redcross.org.cy/upload/20090617/1245230687-07743.pdf](http://www.redcross.org.cy/upload/20090617/1245230687-07743.pdf) [Accessed 10 03 2012].

<sup>17</sup> CIA, 2012. *The World Factbook*. [Online] Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/ax.html> [Accessed 13 03 2012].

<sup>18</sup> Shoukri E. and Zachariadis T., 2012. "Climate change in Cyprus – Impacts and adaptation policies" Environmental Policy Research Group Report 01-12, Cyprus University of Technology, Limassol, Cyprus. Available at: [http://works.bepress.com/theodoros\\_zachariadis/24](http://works.bepress.com/theodoros_zachariadis/24)

<sup>19</sup> Parari, M., 2009. *Op cit*.

<sup>20</sup> Georgiades, N.S., 1998. *Expected impacts of climate change on small islands states, like Cyprus, and measures to be adopted*. In proceeding of *The International conference on the impacts of climate change on the Mediterranean countries*, September 1998, Metsovo, Greece. In Brochier and Ramieri (2001), *op cit*

<sup>21</sup> Parari, M., 2009. *Op cit*.

<sup>22</sup> Karas, J., 2000. *Climate Change and the Mediterranean Region*. Greenpeace. UK. In Brown (2008), *op cit*

<sup>23</sup> Sovereign Base Areas Administration (2006): "Consultation proposal for the draft Akrotiri Environmental Management Plan" published online at: <http://www.sbaadministration.org/home/environment.htm> [Accessed 18 07 2012]

<sup>24</sup> Akrotiri Environmental Education and Information Centre, 2012. *Op cit*.



In practical terms, among conservation interventions promoting the resilience of natural systems, the DEFRA-funded *Acacia Control Project* conducted in 2010. It aimed at mapping the distribution of acacia in SBAs and planning & implementing a removal programme.<sup>25</sup>

Resilience activities in the systems of hydrology and water resources, transportation and energy supply and use have not been conducted. Water conservation measures were promoted during power outages in July 2011.<sup>26</sup>

### Exacerbating Stresses

Since 1900 Cyprus has been affected by approximately 800 earthquakes of magnitudes ranging from 4.0 - 7.0 on the Richter scale, 21 of which had a magnitude higher than 5. On average potentially damaging earthquakes occur approximately every 12 years and a destructive earthquake every 25 years.<sup>27</sup> Since 1992, all new buildings in the SBAs have been required to comply with the Seismic Code for Reinforced Concrete Structures in Cyprus and the European Community regulations covering buildings in areas vulnerable to the risk of earthquakes.<sup>28</sup> Earthquakes could potentially damage transportation and energy supply and use.

Other phenomena exacerbating the effects of climate change include severe coastal erosion which has been taking place over the last 30 years in many coastal areas (much of the southern coast of Cyprus, has been affected by erosion of the softer rocks and deposits forming the shoreline)<sup>29</sup> and high levels of nutrient pollution in Cypriot waters, which could accentuate the effects of an increase in temperature and facilitate eutrophication events.<sup>30</sup>

### Future Opportunities

#### Potential Adaptation Interventions

No specific adaptation interventions have been identified in published literature, though there continue to be conservation based interventions focused on the Akrotiri Peninsula. The JNCC (2011)<sup>31</sup> for example reported that the SBA Cyprus Steering Group has proposed some areas in the SBAs be designated as Special Areas of Conservation in October 2010 but up-to-date information on the progress of this was not available.

#### Implementation Capacity

The SBAs have a Department of Environment, directed by a Head of the Department and employing a further eight people.<sup>32</sup> The Akrotiri Environmental Education and Information Centre has been active in Akrotiri village since 2004 and offers environmental education programmes to school groups from all over Cyprus. Its main source of funding comes from the Sovereign Base Areas Administration.<sup>33</sup>

<sup>25</sup> JNCC (Joint Nature Conservation Committee), 2012. *Sovereign Base Areas (SBAs) of Akrotiri and Dhekelia*. [Online] Available at: [http://sba.mod.uk/docs/eco/20100714\\_SPA.pdf](http://sba.mod.uk/docs/eco/20100714_SPA.pdf) [Accessed 13 03 2012].

<sup>26</sup> SBA (Sovereign Base Areas Cyprus), 2011. *Op cit*.

<sup>27</sup> Cyprus Environment and Energy, 2011. *Earthquakes*. [Online] Available at: [www.cypenv.info/cyprusee/files/earthquakes.aspx](http://www.cypenv.info/cyprusee/files/earthquakes.aspx) [Accessed 10 03 2012].

<sup>28</sup> UK Parliament, 2009. *Defence. Armed Forces: Compensation*. [Online] Available at: [www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090203/text/90203w0030.htm](http://www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090203/text/90203w0030.htm) [Accessed 10 03 2012].

<sup>29</sup> Thomas, R. S., 1981. *Erosion on the Southern Coastline*. UNDP, UNESCO

<sup>30</sup> Parari, M., 2005. *The coastal front of Limassol (Cyprus) - A holistic approach to anthropogenic interventions in the natural system*. University of the Aegean. In Parari (2009), *op cit*

<sup>31</sup> JNCC (Joint Nature Conservation Committee), 2011. *Op cit*

<sup>32</sup> SBA (Sovereign Base Areas Cyprus), 2012. *Sovereign Base Areas Cyprus*. [Online] Available at: [www.sba.mod.uk/environment.htm](http://www.sba.mod.uk/environment.htm) [Accessed 14 03 2012].

<sup>33</sup> Akrotiri Environmental Education and Information Centre, 2012. *Op cit*.

There is no information about funds specifically addressed to the implementation of adaptation projects. DEFRA (2012)<sup>34</sup> reports its willingness to provide advice on policy or scientific issues relating to the Memorandum of Understanding for the *Conservation of Migratory Birds of Prey in Africa and Eurasia*.

## Low Carbon Development (Source)

### Current Emissions

#### Share of Current Emissions

SBAAs are not covered by the UK GHG Inventory.

### GHG Abatement

#### Abatement Potential

The Ministry of Defence, which administers the SBAAs, has been implementing the MOD Climate Change Delivery Plan and the MOD Climate Change Strategy since 2010. They include among their objectives the reduction of greenhouse gas emissions that result from Defence activities.<sup>35</sup> <sup>36</sup>Specific objectives for the SBAAs are not reported.

#### Current Abatement Activities

No actions related to the reduction of greenhouse gas were registered specifically in the SBAAs.

### Low Carbon Opportunities

#### Potential LCD Intervention

The desalination plant in Dhekelia was established under a design, build, own and operate agreement by a private contractor. There may be requirements for similar arrangements. While several scientific studies have shown the big potential of Concentrating Solar Power technologies to be adopted within the process of water desalination. The process of seawater desalination produces both desalinated water and energy, but it contributes to CO<sub>2</sub> emissions.<sup>37</sup>

#### Implementation Capacity

The SBAAs have a Department of Environment, directed by a Head of the Department and employing a further eight people.<sup>38</sup> No information is available about funds specifically allocated to the implementation of Low Carbon projects.

<sup>34</sup> DEFRA, 2012. *Op cit*.

<sup>35</sup> MOD (Ministry of Defence), 2010. *Defence in a Changing Climate*. London, UK: Ministry of Defence.

<sup>36</sup> MOD (Ministry of Defence), 2010 a. *MOD Climate Change Delivery Plan*. London, UK: Ministry of Defence.

<sup>37</sup> Lange, M. A., 2011. *Op cit*.

<sup>38</sup> SBA (Sovereign Base Areas Cyprus), 2012. Sovereign Base Areas Cyprus. [Online] Available at: [www.sba.mod.uk/environment.htm](http://www.sba.mod.uk/environment.htm) [Accessed 14 03 2012].

## UK Exposure

### UK Sunk Assets

The SBA's are run as military bases and all built infrastructure constructed and managed by UK Ministry of Defence. The SBAs host a RAF base in Akrotiri, two British Military Stations at Ayios Nikolaos and Dhekelia and the Command Centre of British Forces in Episkopi. As well as military infrastructure, the bases include supporting infrastructure - schools, leisure centres and medical facilities.<sup>39</sup>

### Absolute Value of UK Transfer

The SBAA budget is roughly £10m per year. Approximately 80% covers salaries and the remainder covers works services (mostly roads) and miscellaneous civil government expenditure. The military authorities supply goods and services to assist the SBAA in performing its tasks.<sup>40</sup> Although the SBAs do not have any formal connection with the FCO, the FCO Overseas Territory Strategic Programme Fund has a ring-fenced allocation of £500,000 covering all the OTs, including the SBAs.<sup>41</sup>

### Share of National Budget from UK Transfer

100% of the budget comes from the Ministry of Defence.

### Potential Liability

Because the SBAs are primarily required as military bases, the Administration reports to the Ministry of Defence in London. It has no formal connection with the Foreign and Commonwealth Office (FCO) or the British High Commission in Nicosia, although there are close informal links with both offices on policy matters.<sup>42</sup>

The SBAs are among the signatories of the following multilateral environmental agreements:<sup>43</sup>

- Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal;
- Convention on Long-Range Trans-boundary Air Pollution;
- The 1988 Sofia Protocol to the Convention on Long-Range Trans-boundary Air Pollution concerning the Control of Emissions of Nitrogen Oxides or their Trans-boundary Fluxes;
- Convention on the Conservation of Migratory Species of Wild Animals (CMS);
- African-Eurasian Migratory Waterbird Agreement (AEWA);
- The Convention on the Prevention of Marine Pollution by dumping of Wastes and Other Matter: The London Convention (LC)/ The London Protocol (LP);
- Ramsar Convention on Wetlands of International Importance.
- The SBAs have also signed a Memorandum of Understanding for the *Conservation of Migratory Birds of Prey in Africa and Eurasia* under the *Convention on the Conservation of Migratory Species of Wild Animals* (CMS).<sup>44</sup>

<sup>39</sup>Ministry of Defence (MOD), 2012. *Defence for the service community*. [Online] Available at: <http://www.mod.uk>[Accessed 14 03 2012].

<sup>40</sup> SBA (Sovereign Base Areas Cyprus), 2012. Sovereign Base Areas Cyprus. [Online] Available at: <http://www.sba.mod.uk/environment.htm>[Accessed 14 03 2012].

<sup>41</sup>Foreign & Commonwealth Office (FCO), 2010. *Strategic Programme Fund- overseas territories*. [Online] Available [www.fco.gov.uk/en/about-us/what-we-do/spend-our-budget/funding-programmes1/strat-progr-fund/strat-prog-fund-over-territs](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 14 03 2012].

<sup>42</sup> SBA (Sovereign Base Areas Cyprus), 2012. Sovereign Base Areas Cyprus. [Online] Available at: [www.sba.mod.uk/environment.htm](http://www.sba.mod.uk/environment.htm) [Accessed 14 03 2012].

<sup>43</sup> DEFRA, 2012. *Op cit*.

<sup>44</sup> DEFRA, 2012. *The Environment in the United Kingdom's Overseas Territories: UK Government and Civil Society Support*. London, UK: DEFRA

## Reputational Risks



The SBAs have a strategic importance for the UK and HMG: they enable Britain to maintain a permanent military presence at a strategically situated point in the Eastern Mediterranean and provide training facilities with reliable weather conditions and demanding terrain.<sup>45</sup> However, disruptions can be produced by issues arising in Cyprus and not directly in the SBAs, for instance causing interruptions or delays in the transportation system of the whole island.

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<sup>45</sup> SBA (Sovereign Base Areas Cyprus), 2012. Sovereign Base Areas Cyprus. [Online] Available at: [www.sba.mod.uk/environment.htm](http://www.sba.mod.uk/environment.htm) [Accessed 14 03 2012].

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.

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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>Source: <i>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>Source: <i>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>Source: <i>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>Source: <i>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>Source: <i>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>Source: <i>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: Sovereign Base Areas of Akrotiri and Dhekelia - 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	Red	Red
2 Increase/decrease/variability in precipitation	Red	Red
3 Decrease in snow cover and ice	Green	Green
4 Heat waves	Red	Red
5 Heavy precipitation events/floods	Green	Green
6 Extreme storm events	Green	Green
7 Rising sea levels	Green/Amber	Red
8 Ocean acidification	Green	Green

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

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

### The Sovereign Base Areas of Akrotiri and Dhekelia

Summary
<p>The Sovereign Base Areas (SBAs) of Akrotiri and Dhekelia cover 255 sq km miles at two different locations on Cyprus. The SBAs primarily required as military bases. Population of 15,700 live in SBAs. Temperate, Mediterranean climate with hot, dry summers and cool winters.</p> <p><b>Threat Exposure Analysis</b> Average temperature already increased by 1.8C; average rainfall fallen by 17%; drought periods, dust suspension and hail storms becoming longer and more frequent. Relative sea level rise in Cyprus of the order of 0.4-0.5 m by 2100 and resulting shoreline retreat likely to range between 40 to 100 metres Frequency of heat waves and droughts likely to increase in future. Reduction of precipitation trends of 6% - 18% between 2021 and 2050. Import of mainly fossil-fuel generated electricity from Cyprus.</p> <p><b>Adaptation and Resilience</b> Wetland system of Akrotiri Salt Lake and Akrotiri Marsh designated in 2003 as a wetland of international importance. Presence of endemic and endangered species of flora and fauna. Highest level of water stress index in Europe (higher than 60%) in Cyprus. Presence of a desalination plant in Dhekelia. Local habitats and water stress levels going to worsen due to climate change. Resilience activities for the protection of endangered species in place. Special Areas of Conservation proposed in 2010. Memorandum of Understanding for the Conservation of Migratory Birds of Prey in Africa and Eurasia signed and DEFRA willing to provide advice.</p> <p><b>Low Carbon Development</b> SBAs not covered by the UK GHG Inventory. Ministry of Defence implementing the MOD Climate Change Delivery Plan and the MOD Climate Change Strategy since 2010. Potential for Concentrating Solar Power Technologies.</p> <p><b>UK Exposure</b> SBAs under the responsibility of UK Ministry of Defence. SBAA budget about £10 million per year. \$500,000 available for all OTs from FCO. SBAs signatories of several multilateral environmental agreements. SBAs strategic importance for UK. Likely to be affected by disruptions in Cyprus.</p> <p><b>Exacerbating Risks</b> Earthquake, coastal erosion and marine pollution</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						
	Hydrology and Water resources						
Economic	Transportation						
	Energy Supply and Use						

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	

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	Transport	X	X	X		
		X	X	X	X	
Waste management		X	X	X	X	

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