



# Climate Change

## An Overview for Politicians and Senior Decision Makers

Understanding the challenges and the opportunities that climate change presents has become an essential requirement of governments of vulnerable countries like the UK Overseas Territories. Although there is some uncertainty about the full extent of future climate change impacts, experience to date and projections based on current and foreseeable greenhouse gas emissions scenarios, suggest the territories ought to assume that future climate impacts will be more severe than anything experienced so far.

### High stakes

The climate stakes are high for UK Overseas Territories. The build-up of greenhouse gases in the Earth's atmosphere is putting our countries under increasing stress and all indications point to more extreme conditions in the future. Changing climate patterns and extreme weather add another dimension of vulnerability to the inherent economic, ecological and social vulnerabilities associated with the small size of our land masses, populations and economies and the high level of economic dependence on our natural resource base – whether for tourism, agriculture or fisheries.

Climate change makes it more difficult to deal with other natural hazards and environmental shocks. It also presents a challenge to governments in terms of “climate-proofing” their strategies to deal with issues such as health, food security, water resources, sustainable livelihoods and biodiversity conservation.

### An opportunity

Addressing climate change is an opportunity to build resilience in the face of our territories' inherent vulnerabilities and improve natural resource management and physical planning processes.

### Early investments pay off

Taking action now to prepare for climate change impacts will be less costly and more effective than remedial measures in the future. Analysis from the Caribbean has shown that reconstruction costs can be as much as 40 per cent of the original investment.<sup>1</sup> This is more than it would have cost to implement preventative measures at the start.

### Box 1. Climate change is happening

- Global average surface temperature increased by about 0.6°C during the 20th century.
- The 1990s were the hottest decade and 1998 the hottest year on record, since temperature recording began some 150 years ago.
- Since 1970, there has been more intense tropical storm activity, marked by a 75% increase in the number of category 4 and 5 hurricanes.
- Global average sea level has risen at an average rate of 1.8 mm per year since 1961. Since 1993, the average rate of increase has been 3.1 mm per year.
- 80 per cent of live coral to a depth of 30 m succumbed to bleaching in the Chagos Archipelago in 1998 after sea surface temperatures rose to almost 30°C.

### Good climate policy

Good climate policy demands that structures and systems be strengthened to better withstand change (adaptation) and measures be taken to reduce the human impact on the climate system (mitigation).

### Adaptation is a win-win proposition

If a country or community is not fully able to cope with current climatic conditions, it cannot expect to effectively adapt to future changes in climate. Investment in targeted actions that address current issues, such as the need for effective biodiversity conservation and the reduction of vulnerability to climatic events (for example, droughts, storms and floods), are also the first steps in investing in climate change adaptation.

Managing inherent risk is important in adapting to climate change. By addressing the development challenges that

<sup>1</sup>Bettencourt, S., R. Croad, P. Freeman, J. Hay, R. Jones, P. King, P. Lal, A. Reaves, G. Miller, I. Pswarayi-Riddilough, A. Simpson, N. Teuatabo, U. Trotz, and M. Van Aalst. 2006. *Not If, But When? Adapting to Natural Hazards in the Pacific Islands Region*. A Policy Note. The World Bank. East Asia and Pacific Islands Country Management Unit.



Sea ice cover has shrunk in the seas to the west of the Antarctic Peninsula but increased elsewhere in the Antarctic  
 Credit: Pete Bucktrout/BAS

have led to the accumulation of hazard and human vulnerability, we reduce the negative effects of extreme climatic events and natural disasters. This helps limit immediate losses while reducing the future costs of recovery from climate events.

### Mainstreaming climate change

Mainstreaming climate change into the national policy and planning process does not require a dramatic departure from all that has gone before. It can be done in an incremental way by building on, and adjusting, existing policies, programmes and structures. What is required is a commitment to dealing with current climate, environmental, social and economic needs and vulnerabilities in a holistic manner.

A national agenda and framework for action by individuals, communities and the public and private sector includes having incentives, institutions and instruments in place to support adaptation and mitigation, as well as ensuring that accurate information is available to all.

## 1. Incentives

### Encourage and reward early action

It is important to have incentives that encourage appropriate early action rather than supporting remediation. Some countries have set up disaster recovery funds, for example, and, while this is essential, it is important to have funds in place that support preventative action at all levels.

The right incentives can also support physical planning regulations, encourage the uptake of technologies as part

## Box 2. What climate change could mean for UK Overseas Territories in the future

- Warming in Antarctica could melt ice sheets, making a significant contribution to sea level rise.
- A 0.5 m increase in sea level would lead to the loss of just over one-third of marine turtle nesting sites in the Caribbean.
- The Caribbean and the Pacific are likely to have an increase in the incidence of dengue fever as conditions become more favourable for the fast and more widespread reproduction of the parasite that causes it.
- Changes in sea temperature could result in mass stranding of fish during the spawning season, affecting the commercial and sport fishing industries in the South Atlantic.
- Commercially valuable fish species in the Caribbean – tuna, dolphin and parrotfish – would not survive a 1°C rise in sea temperature.
- Warmer conditions in the South Atlantic and sub-Antarctic could expand the range of invasive species, like mice and reindeer, which threaten native plants and animals.
- Increased drought and desertification in the Mediterranean could affect agricultural production and food security.
- Coral reefs could be destroyed by warmer seas and coral bleaching could become an annual event by 2015.

of an energy agenda, and encourage businesses and individuals to take action to reduce damage or losses from weather events.

## 2. Institutions

Having the right institutions in place to promote and facilitate adaptation is important. The appropriate institutional arrangements will vary from territory to territory, but there are certain important conditions and characteristics:

- a. There should be an institution that drives the process and has a clear mandate to coordinate, implement and support appropriate climate change adaptation.
- b. This institution should be a part of key decision-making processes across sectors and mainstreamed into national economic planning.<sup>2</sup>
- c. Effective adaptation needs a mix of ‘top down’ and ‘bottom up’ contributions, which makes it important to have in place mechanisms that facilitate participation by citizens and their organisations, the private sector, and actors across the public sector.<sup>3</sup>

<sup>2</sup> Bettencourt, S. et. al. 2006. *Op.cit.*

<sup>3</sup> Bettencourt, S. et. al. 2006. *Op.cit.*

### 3. Instruments

Several instruments can be used to support climate adaptation and mitigation. Each country needs to apply the mix of instruments best suited to its capacity, vulnerabilities and needs.

#### **Policy**

- Integration of disaster management and climate adaptation into national decision-making processes
- Adjusted building codes to withstand stronger hurricanes and cyclones
- Land use policy for development in the coastal zone
- Preparation of land development control plans
- Energy policy to diversify energy sources and decrease reliance on fossil fuels
- Hazard disclosure laws for real estate purchases
- Economic diversification
- Agricultural diversification
- Coastal zone settlement policy/relocation of vulnerable communities

#### **Technology**

- Introduction of early warning systems for hurricanes, floods and droughts, and improved forecasting
- Introduction of water-saving devices
- Expanding the network of hydro-meteorological, oceanographic and marine instruments to monitor climate change
- Improvements to man-made coastal and sea defences (sea walls, groins, etc.)

#### **Economic and fiscal incentives**

- Tax breaks for adoption of clean technologies
- Reduced import duties on alternative energy technology

#### **Information for decision-making**

- Regional climate modelling
- Flood plain, storm surge, erosion or hazard mapping
- Social vulnerability mapping
- Resource inventories
- Economic valuations of the impacts of climate change scenarios on economic sectors (tourism, fisheries, agriculture)
- Capturing traditional knowledge from communities and key natural resource user groups, such as farmers and fishers
- Weather hazard audit for infrastructure

#### **Monitoring and management**

- Integration of climate change consideration into day-to-day management of all sectors

- Water quality monitoring of fresh, saline and hyper-saline waters to track the vulnerability to sea level rise
- Integrated watershed and coastal zone management
- Monitoring systems for sea level rise and local wave climate
- Shore line monitoring
- Beach nourishment
- Reduction of external stresses on coastal and marine ecosystems, including coral reefs, sea grass beds, salt marshes and wetlands.
- Post-disaster preparedness plans

#### **Building capacity**

- Improvements to data management systems
- Increasing local research and scientific capacity
- Building linkages between local research initiatives and communities

### 4. Information

Decision makers, whatever the sector, need appropriate climate change information about risks and vulnerability and the options for action.

Widespread public awareness and education are necessary to build support for climate change policy and adaptation. The private sector and the general public need to understand climate risks and appreciate the benefits of adaptation and early action, particularly as they relate to their individual circumstances.

#### **What the UK Overseas Territories can do about mitigation**

We need to take immediate measures to halt global greenhouse gas emissions if we are to avoid climate chaos. The solution to this global problem lies in collective action by governments, businesses and citizens to reduce human impacts .



Some commercially valuable fish species will not survive increased sea temperatures, threatening the livelihoods of fishermen. *Credit: Steve Freeman*

### Box 3. Diversifying energy sources in UK Overseas Territories

Some territories have taken steps towards diversifying their energy sources.

- The power company in Bermuda, BELCO, is diverting waste from landfills and turning rubbish into energy sufficient to power 2,500 homes.
- Three wind turbines on St. Helena contribute up to 240kW or 20% of the total demand for electricity in peak hours and 45% at off-peak times.
- A proposed hydro-electric power plant on South Georgia Island would reduce carbon emissions there.
- Plans are also in progress to erect two additional wind turbines on Ascension by 2011, which would bring to nine the total number of wind turbines in use there.

Even though UK Overseas Territories make a small contribution to warming and have little control over global mitigation, we can play our part in the global reduction of greenhouse gas emissions in the following ways:

- enhancing energy efficiency;
- diversifying our energy sources and increasing reliance on non-fossil fuel sources of energy; and
- providing for the development and uptake of climate friendly technologies.

Areas that the territories could consider as priority for mitigation through energy efficiency include:

- development and application of renewable energy technologies, especially solar and wind;
- improved efficiency in energy use by all users (public sector, private sector, households); and
- strengthened institutional capacity for energy management.<sup>4</sup>

Contributing to the reduction of greenhouse gas emissions is a good step for any member of the international community to take, but the benefits of such actions are also immediate to the territories in the form of reduced fossil fuel dependency, decreased dependency on imports and lower fossil fuel import bills. When added up, every contribution to finding a solution to this global problem, regardless of scale, will make a difference.

<sup>4</sup> Challenger, B. 2002. Conference Paper. *Climate Change Mitigation in Caribbean Micro-States: the Antigua Barbuda Experience*. IPCC Outreach Workshop on Mitigation Working Group III. 23-24 September 2002, Havana, Cuba. National Team on Climate Change, Cuba and the Centre for World Economy Studies (CIEM) with co-sponsorship of the IPCC and the UNDP Office in Havana.



Coral monitoring in the BVI.

Credit: BVI National Trust

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#### Documents in this JNCC series:

*Climate Change in the UK Overseas Territories: An Overview of the Science, Policy and You* - A look at climate science and policy and how global warming affects UK Overseas Territories.

*Climate Change in the UK Overseas Territories: A Brief Overview of the Science, Policy and You* - Executive summary of the document above.

*Climate Change: An Overview for Politicians and Senior Decision Makers* - Key issues for policy and decision makers to take into account in climate-proofing national policies and programmes.

*Climate Change: A Practical Guide for Your Organisation* - How businesses can reduce their carbon footprint.

*Climate change in the UK Overseas Territories (DVDs): Part 1: Impacts and Part 2: Adaptation and mitigation* - Short videos on climate science and policy and how global warming affects UK Overseas Territories.

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Joint Nature Conservation Committee (JNCC)  
Monkstone House, City Road  
Peterborough PE1 1JY, United Kingdom  
Tel: +44 (0) 1733 562626; Fax: +44 (0) 1733 555948  
Email: [communications@jncc.gov.uk](mailto:communications@jncc.gov.uk)



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