CCPO

CLIMATE CHANGE PROJECTS OFFICE

Working with Business for a Cleaner Planet

A Climate Change Business Guide

1. An Introduction to Climate Change Projects

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http://www.dti.gov.uk/ccpo

DEFRA
Department for
Environment,
Food & Rural Affairs

dti
Department of Trade and Industry

CONTENTS

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INTRODUCTION

This Introduction to Climate Change Projects has been produced by the UK Government's Climate Change Projects Office, the CCPO.

The aim of the guide is to give you an overview of Climate Change Projects, including relevant background to the concept and typical examples, to raise awareness of the opportunities they present for UK business.

The guide is part of a series, and the booklet *An Explanation of Joint Implementation and the Clean Development Mechanism* gives more details and advice on how to ensure suitable projects are eligible for greenhouse gas emission reduction credits. It can be requested by completion of the detachable pre-paid reply card, and other services can be requested in the same way, so we urge you to complete this and return it to us.

The CCPO is here to help UK business by offering an expert advice service and a "first-stop shop" to access all areas of Government involved in Climate Change projects. We offer general briefings and tailored advice, but are limited in the amount of time we can devote to individual projects, so additional consultancy services will often be required to advance specific project proposals.

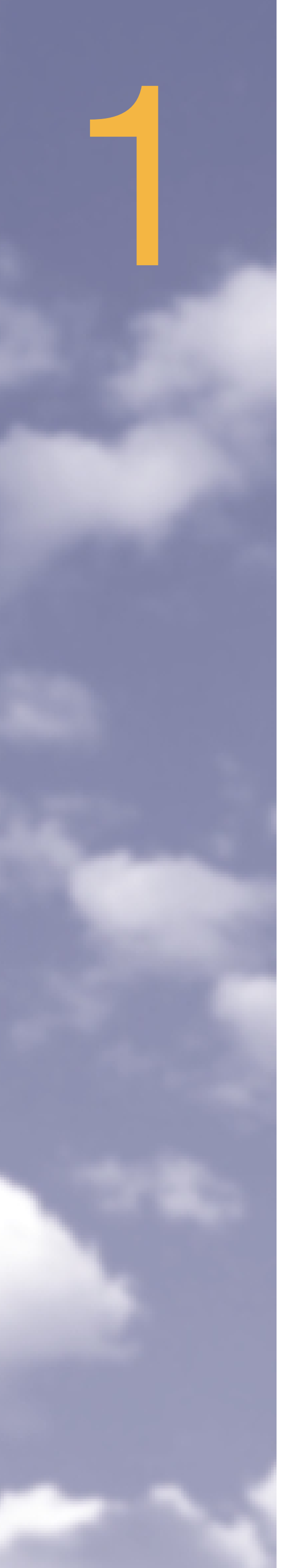
To find out more about how the CCPO can help you, please visit our website at http://www.dti.gov.uk/ccpo

We would also like to draw your attention to the glossary of Climate Change terms included on the site, and the database of professional services.

If you think we can help you, please contact us.

The Climate Change Projects Office

Telephone: +44 (0)20 7215 1608
E-mail: ccpo.enquiries@dti.gsi.gov.uk



THE CLIMATE CHANGE PROJECTS OFFICE

The Climate Change Projects Office is the Government advisory office for UK business wishing to be involved in the project opportunities arising from the Kyoto Protocol.

What Can
we deliver to business?

The Climate Change Project Office offers:

- Advice on the development and implementation of Climate Change Projects;
- Assistance with preparing project proposals including basic guidance:
  - Access to a wide range of professional services and advice;
  - Experience from similar projects;
  - Where to find potential project partners;
  - Where to find potential investors and funding sources;
  - Markets for emission reduction credits;
  - The current status of international, European and UK policy on project eligibility and rules;
- Assistance overcoming any barriers.

What Are
Climate Change Projects?

Climate Change Projects are projects which reduce greenhouse gas (GHG) emissions and which are eligible for tradeable emission reduction credits. They are also known as “Kyoto Mechanism” projects.

Projects which reduce GHGs are likely to be in the following areas:

- Energy efficiency (energy or transport);
- Energy supply – utilising lower carbon-intensive forms (energy or transport);
- Industrial processes, particularly cement production, chemical processes, metal production and oil and gas production;
- Agricultural practices and livestock management;
- Management of biodegradable waste;
- Forestry and land use practices to store carbon;
- Underground storage of carbon dioxide (e.g. in disused oil reservoirs).

The CCPO’s remit is to assist business to take advantage of the opportunities created by this type of project, when implemented overseas. Projects fall into two categories:

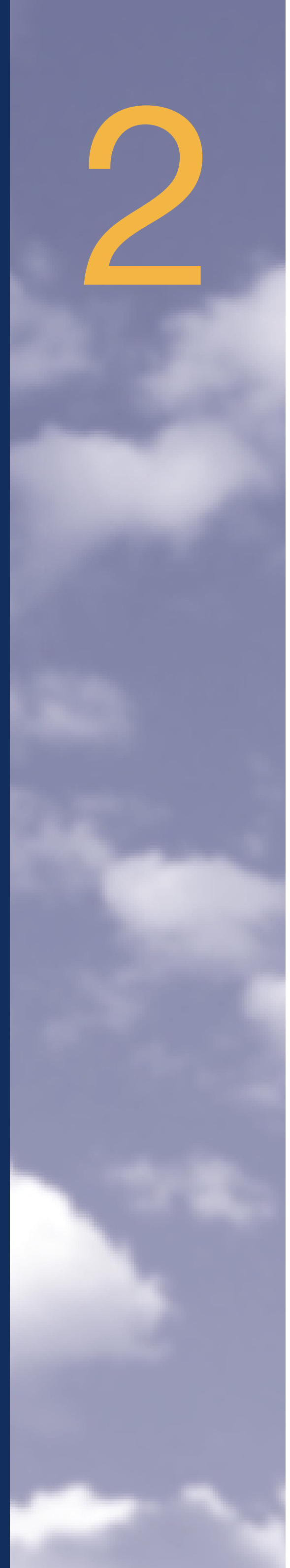
- Joint Implementation (JI) projects in developed countries;
- Clean Development Mechanism (CDM) projects in developing countries.

The Kyoto Protocol

There is growing concern about the impact that increased emissions of certain gases, known as “greenhouse gases”, are having on the global climate. Under the Kyoto Protocol, industrialised countries and those in transition to a market economy (the so-called “Annex I countries”) have agreed to limit or reduce their emissions of these greenhouse gases. The Protocol sets quantified emission limitations and reduction obligations with respect to a basket of six gases. Of these, carbon dioxide (CO_2), which derives from the burning of fossil fuels such as coal, oil and gas, is the most important. Methane (CH_4) and nitrous oxide (N_2O) emissions are also substantial contributors to the problem.

The six greenhouse gases addressed by the Kyoto Protocol are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur hexafluoride (SF_6)



THE BACKGROUND TO JI AND CDM PROJECTS

National Emission Targets
and how they will be met

The “Annex I countries” are those that have taken on emission reduction or limitation targets under the Kyoto Protocol. These targets define the amount of greenhouse gas emissions (GHG) that the countries in question are allowed in the “Commitment Period” of 2008-2012, relative to the amount emitted in 1990. These targets represent either a cut in emissions, or a lower rate of increase compared to the emissions which would arise from expected development - “business as usual”.

To achieve their Kyoto emission targets, the Annex I countries are expected to make changes to reduce emissions in their own country (i.e. domestic action). Measures can include changes to their energy policy relating to energy sources, energy generation and energy usage, and non-energy related actions, for example, management of methane released from landfill sites, changes in agricultural practices, and afforestation and reforestation projects to “store” carbon.

In addition to domestic action to reduce GHG emissions, countries can take advantage of three “Kyoto Mechanisms” to assist in reaching their targets.

The Kyoto Mechanisms are:

- Joint Implementation (JI) - emission reductions which arise from project investments in other countries with their own Kyoto emission targets - other Annex I countries;
- Clean Development Mechanism (CDM) - emission reductions arising from project investments in developing countries - non-Annex I countries - which don't have their own Kyoto emission targets;
- International Emissions Trading – portions of an Annex I country's emission allowances can be bought and sold on an international carbon trading market.

An Annex I country can become involved in emission reductions taking place in another country. This involvement can be either direct or indirect - through delegating responsibility for achieving targets arising from direct action to companies, or through the country or companies purchasing credits via emissions trading.

The CCPO helps UK business take advantage of the opportunities provided by the JI and CDM project mechanisms, but emissions trading is outside the scope of our activities.

The Annex I Countries

The countries which have signed up to the Kyoto Protocol and been assigned an emission reduction target are:

Australia, Austria, Belgium, Bulgaria*, Canada, Croatia*, Czech Republic*, Denmark, Estonia*, Finland, France, Germany, Greece, Hungary*, Iceland, Ireland, Italy, Japan, Latvia*, Liechtenstein, Lithuania*, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Poland*, Portugal, Romania*, Russian Federation*, Slovakia*, Slovenia*, Spain, Sweden, Switzerland, Ukraine*, United Kingdom, United States of America**

* Countries that are undergoing the process of transition to a market economy

** The USA has declared its intention not to ratify the Kyoto Protocol, and therefore not to adopt its Kyoto emission reduction target

Why
were the Kyoto Mechanisms set up?

The principle behind the three Kyoto Mechanisms is that the effect on the global environment is the same wherever the GHG emissions come from, so it is better to reduce emissions where the cost is lowest. In meeting its Kyoto target, a country may find it more cost-effective to undertake projects and achieve some of its emission reductions in other countries, if the cost of reducing emissions there is less. The main advantages for host countries are the attraction of foreign investment, the transfer of technology, and the contribution projects make to the country's sustainable development.

Some countries, including the UK, are relying heavily on business to deliver a significant proportion of the required emission reductions, and the Government is providing both carrots and sticks to achieve this. Where companies have a compulsory or voluntary emissions reduction target to meet, it is possible to take advantage of JI or CDM projects to achieve the reductions at a lower cost.

The JI and CDM mechanisms promote investment in greenhouse gas abatement technologies in, for example, energy generation, energy usage, waste management, transport and agriculture sectors, through providing an incentive in the form of emission reduction credits. These credits will be redeemable in international markets and ultimately against emission reduction targets in Annex I countries. In order for the incentive to be realised, the achieved emission reductions need to be additional to "business as usual", and clearly established, accounted for and credited. The JI and CDM mechanisms enable this accounting and crediting to occur.

How
does it work?

National Governments of Annex I countries may:

- Encourage or require private business to limit or reduce their GHG emissions through domestic action;
- Authorise private business to participate in emission reduction projects overseas which generate credits that can count towards their domestic target;

- Directly fund emission reduction projects overseas. This is achieved by guaranteeing to purchase credits from projects generated by domestic or other companies, and using these to count towards their Kyoto target (this approach has been adopted by the Dutch Government);
- Purchase credits via international emissions trading, without having initiated the projects;
- Transfer credits through hosting JI projects;
- Sell credits via international emissions trading, if a country is in compliance with its target at the end of the first Commitment Period;
- Bank credits to count towards future Kyoto Commitment Periods.

In the same vein, companies can:

- Undertake emission reduction strategies on their own premises – energy efficiency, process changes, fuel switching etc;
- Undertake emission reduction projects in operations which they own overseas;
- Carry out projects overseas with a view to generating credits to meet their own targets;
- Purchase credits via national or international emissions trading, if this is more cost-effective than making reductions in-house;
- Sell credits via private agreements, national or international emissions trading;
- Bank credits to count towards future targets.

For a national Government to authorise companies to participate in international emissions trading, the Government itself must be in compliance with certain regulations. These regulations include ratifying the Kyoto Protocol, and creating and maintaining a national inventory of emissions.

Entry Into Force Of The Kyoto Protocol

In order for the Kyoto Protocol to enter into force, it must be ratified by at least 55 countries, including Annex I countries accounting for at least 55% of this industrialised group's emissions in 1990.

The current status regarding ratification of the Kyoto Protocol is included on the following website:

http://unfccc.int/resource/kpthermo.html

Individual country positions regarding the Kyoto Protocol and ratification are shown on the UNFCCC website:

http://unfccc.int/resource/country/index.html

3

OPPORTUNITIES FOR BUSINESS

What Are

the business opportunities that JI and CDM Projects present?

Joint Implementation (JI) and Clean Development Mechanism (CDM) projects offer a range of opportunities for business, including:

- Meeting emission reduction targets at least cost;
- Generating an additional revenue stream in the form of tradeable credits;
- Generating investment capital by transferring the rights to the future carbon credits or a revenue stream;
- Improving funding opportunities by appealing to those seeking to secure emission reduction credits;
- Providing services to match investors and developers, or trade credits;
- Providing services to ensure projects are eligible for credits.

In certain sectors, UK developers and companies will be advantaged compared to their competitors due to their technical know-how and past experience, and/or the political relationship between the UK and host nation Governments.

The market for GHG emission reduction projects is increasing and an additional revenue stream is generated in the form of the carbon credits which are accrued. However, complying with the necessary rules will result in project developers incurring additional costs. These are termed “transaction costs”. Broadly speaking, these will have less impact on the project’s viability, the larger the project.

Some small projects may not benefit from becoming JI or CDM projects as the transaction costs may exceed the revenue generated. In recognition of this, simplified procedures are being developed for small-scale CDM projects.

The key issues to be considered are listed below for project developers and companies considering whether to undertake a JI or CDM project.

For UK Project Developers

Key questions are:

- Would my project be eligible as a CDM or JI project? In particular, are the emission reductions envisaged additional to those that would occur under a “business as usual” scenario?
- Is the country where the project will take place eligible to host JI or CDM projects?
- Is the country where the project will take place enthusiastic and does it have the capacity to host JI or CDM projects?
- Would the value of the emission reduction credits improve the financial viability of my project proposal?
- Which procedures will need to be followed to ensure the project is eligible for emission reduction credits?
- Will the benefits/likely value of the credits exceed the transaction cost/effort of complying with the procedures to obtain them?
- What assistance is available to ensure the project is eligible to receive emission reduction credits?

For UK Companies Wishing To Meet Emissions Targets Or Generate Credits For Sale

Key questions are:

- Does my company need emission reductions to meet our own business target/commitment, or one imposed by the Government? Or is there another business advantage to undertaking a JI or CDM project?
- How can I achieve these emission reductions?
- Can emission reductions be obtained more cost-effectively at overseas sites than at our UK sites?
- Can I ensure these emission reductions are eligible to contribute towards my target?
- Can I undertake a project of a type which is eligible as a CDM or JI project?
- Is it clear who will own the emission reduction credits?
- Is the country where the project will take place eligible to host JI or CDM projects?
- Is the country where the project will take place enthusiastic and able to host JI or CDM projects?
- Which procedures will need to be followed to ensure the project is eligible for emission reduction credits?
- Will the benefits of the credits exceed the cost/effort of complying with the procedures to obtain them?
- What assistance is available to ensure the project is eligible to receive emission reduction credits?
- Will I generate more emission credits than I need, and be able to sell the surplus?
- Can I meet my target more cost-effectively through directly funding a project undertaken by a third party, and obtaining the emission reduction credits?
- Can I meet my target more cost-effectively through purchasing credits via emissions trading?

Assistance with answering these questions is available from the Climate Change Projects Office (CCPO).

The CCPO is also able to offer advice concerning:

- The merits of CDM vs JI projects (procedures and approvals process, date when credits can start to accrue);
- The merits associated with different host countries;
- The potential risks associated with different host countries;
- The willingness of different Governments to act as hosts;
- Likely viable project size;
- Potential value of emission reduction credits (Kyoto compliant credits and non-Kyoto compliant credits);
- The degree of UK Government support for projects in different sectors and host countries;
- Potential sources of funding for projects;
- Potential for UK Government approval of projects, where required.

4

JI AND CDM PROJECTS EXPLAINED

What Are
the differences between JI and CDM Projects?

There are two main differences between JI and CDM projects. These relate to the country in which the project is carried out and the credit allocation procedure. Both investments will deliver emission reduction credits that may be accepted for international trading and against domestic targets in Annex I countries.

JI Projects

The carbon credits which accrue to a JI project are termed Emission Reduction Units (ERUs) and they are issued by the host country's Government.

A JI project is undertaken in a developed country which has an emission reduction target under the Kyoto Protocol - an Annex I country. The project results in the host country giving up a number of its Kyoto GHG allowances and transferring these allowances to the country which funds the development.

For such a transaction to take place, both countries must have ratified the Kyoto Protocol, and in line with Protocol requirements, the emission inventories for both countries will be independently assessed. The administrative requirements for confirming the emissions resulting from JI projects are therefore streamlined. There are provisions which mean that if the host country is not in compliance with some of the regulations, a transaction can still take place by following the procedures for "Second Track JI projects".

More details on the procedures involved in JI and Second Track JI projects are provided in the accompanying guide *An Explanation of Joint Implementation and the Clean Development Mechanism*.

CDM Projects

The carbon credits which accrue to a CDM project are termed Certified Emission Reductions (CERs) and they are issued by an international body called the CDM Executive Board.

A CDM project is undertaken in a developing country which has no emission reductions target – a Non-Annex I country. As the CDM host country has no GHG target, in order to transfer an emission reduction to a country which does have a target, the project investor must show that the emission reductions produced by the project are additional to any which would occur in its absence. The administration is more complex than for JI projects, and it is also necessary to demonstrate how the project contributes to delivering the sustainable development objectives of the host country.

CDM projects in all but the least developed countries are also subject to a levy (2% of the value of the credits which accrue) payable into an adaptation fund to assist developing countries to adapt to the impacts of Climate Change.

The CDM project cycle is more fully described in the accompanying guide *An Explanation of Joint Implementation and the Clean Development Mechanism*.

The CCPO is able to advise on the prospects for successful projects in different host countries and relations with host Governments.

5

BUYING AND SELLING CARBON CREDITS

Who
allocates the credits?

The main procedures to be followed to obtain Emission Reduction Units (ERUs) from JI projects and Certified Emission Reductions (CERs) from CDM projects were agreed at the seventh UNFCCC Conference of the Parties (CoP 7) in Morocco in November 2001.

JI Projects

For a JI project, the ERUs are issued to another party by a Government which has its own emissions target to reach. It has been agreed that the host country can determine the criteria and procedures for the allocation, on the condition that the country itself has met a range of stringent eligibility criteria regarding keeping an inventory of emissions.

A host country which does not meet some of these eligibility criteria may still approve JI projects and issue ERUs if sufficient third party verification takes place, i.e. the procedures for a second track JI project are followed (which are quite similar to those for a CDM project). In the case of JI, verification of the emission reduction has to be carried out by an independent entity (IE) which has been accredited by the international JI Supervisory Committee.

CDM Projects

In the case of a CDM project, the CERs are issued for a project in a country which has no emission reduction target, and potentially there is a greater risk that the emission reductions may be over-estimated. CERs are not issued by the host country, but instead are issued by the internationally appointed CDM Executive Board. This Board is taking a lead in establishing the procedures for validation and registration of projects, and verification and certification of emissions. Third parties, known as Designated Operational Entities (DOEs), are accredited by the CDM Executive Board and they validate the initial project proposal and recommend approval by the CDM Board. These DOEs will also verify the emission reductions prior to the CDM Executive Board issuing the CERs.

An overview of the processes involved is presented in the accompanying guide *An Explanation of Joint Implementation and the Clean Development Mechanism*, together with key dates for finalising the outstanding procedural issues which require international agreement.

Carbon Credits

There are four types of carbon credit:

- **Assigned Amount Units (AAUs)** – these are allocated to countries which have accepted an emissions target under the Kyoto Protocol. The amount allocated is equivalent to the total emissions the countries have agreed to limit themselves to over the five year Commitment Period of 2008-2012 – effectively they are rights to emit;
- **Emission Reduction Units (ERUs)** – these are assigned for JI projects for achieving a reduction in emissions compared to business as usual;
- **Certified Emission Reductions (CERs)** – these are assigned for CDM projects for achieving a reduction in emissions compared to business as usual, as long as the sustainable development criteria are also met;
- **Removal Units (RMUs)** – these are assigned for emissions which are stored, such as carbon sequestered in trees or carbon dioxide storage in underground gas reservoirs.

If a country is able to reduce its emissions sufficiently through domestic action to be below its target, then it can:

- Keep the excess AAUs for use during the rest of the Commitment Period, or for banking into a subsequent Commitment Period;
- Transfer or sell the AAUs to another country which has emitted more than its target and so does not have enough AAUs for all of its emissions.

If a country is concerned that its emissions will exceed its target and AAU allocation, it can gain extra credits by undertaking projects in other countries (JI or CDM), or buying them on the international emissions trading market (generated by other countries or companies).

In terms of credits allocated for emission reductions (ERUs, CERs and RMUs), the main differences between the credits relate to the level of third party scrutiny applied to their allocation (greater for CERs than for ERUs), and whether or not they can be banked for use against future targets (a certain number of ERUs and CERs can be, and RMUs cannot). In all cases, one unit relates to the reduction or storage of greenhouse gases equivalent in impact to one tonne of CO_2 emissions.

Who
are the buyers?

The ultimate buyers are most likely to be those companies and countries who are or will become subject to emission reduction commitments and have relatively high costs of reducing emissions domestically. Early buyers may be prepared to take a certain risk, buying options or futures, in order to obtain low cost emission credits which are likely to qualify for the Kyoto Mechanisms.

Project activities are eligible to qualify for either CDM or JI status from 1 January 2000. CDM credits can be earned for emission reductions achieved since 1 January 2000, although credits for JI projects cannot be earned until 2008.

Examples Of Credit Buyers

Some Governments, public bodies and private companies are currently buying reduction credits in anticipation of the project mechanisms being established.

Two examples are:

The Prototype Carbon Fund of the World Bank
http://www.prototypecarbonfund.org

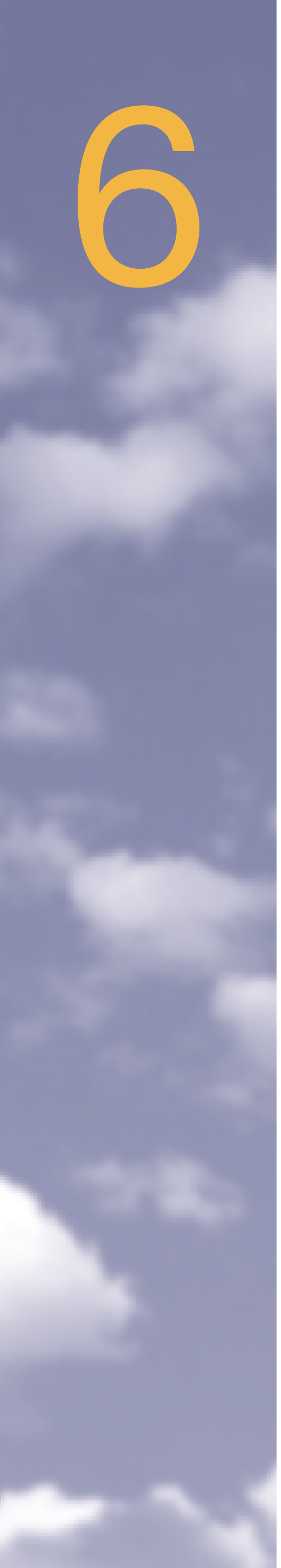
the ERUPT and CERUPT Programmes of the Dutch Government
http://www.senter.nl

In addition, several private companies have been willing to buy futures or options in JI and CDM emission reductions to meet their own target commitments.

Who
are the sellers?

Potential sellers are those companies and countries with a demonstrable emission reduction potential that is relatively cheap compared with other companies or countries. Establishing this potential requires careful analysis, but typical measures which might reduce GHG emissions are:

- A move to less carbon-intensive forms of energy, through the use of renewable energy, and the replacement of carbon-intensive fuels by less carbon-intensive fuels (for example the substitution of coal by gas);
- More energy-efficient industrial processes;
- The management of methane released from landfill sites;
- A variety of changes in agricultural practices;
- Adoption of afforestation and reforestation projects to “store” carbon.



6

UK GOVERNMENT ASSISTANCE

Action
to date by the UK Government

To assist UK business to take advantage of the opportunities, the Government has:

- Established the Climate Change Projects Office (CCPO) to advise and assist UK business to take part in Joint Implementation (JI) and Clean Development Mechanism (CDM) projects;
- Established the UK Emissions Trading Scheme (ETS), in conjunction with business and other key stakeholders, which was launched in April 2002.

  http://www.defra.gov.uk/environment/climatechange/trading/index.htm

Help in developing overseas Climate Change projects is also available from Trade Partners UK, part of DTI (contact Jeff Chapman, Export Promoter - Energy and Environment)
Tel: +44 (0)20 7215 4282
or E-mail jefchap@aol.com

In addition to this, the Government is supporting potential host countries in a number of ways, particularly in the important area of capacity building. The action is led by the Department for International Development (DfID) and the Foreign and Commonwealth Office (FCO). Further information can be obtained from their websites:

http://www.dfid.gov.uk

http://www.fco.gov.uk

UK GOVERNMENT DEPARTMENTS AND ORGANISATIONS INVOLVED IN CLIMATE CHANGE ISSUES

ACBE	Advisory Committee on Business and the Environment
BTI	British Trade International
CCPO	Climate Change Projects Office
CT	The Carbon Trust
DEFRA	Department for Environment, Food and Rural Affairs
DfID	Department for International Development
DfT	Department for Transport
DTI	Department of Trade & Industry
ECGD	Export Credits Guarantee Department
EST	Energy Savings Trust
ETA	Emissions Trading Authority
ETG	Emissions Trading Group
FCO	Foreign & Commonwealth Office
HMG	Her Majesty's Government
HMT	Her Majesty's Treasury
JEMU	Joint Environmental Markets Unit
OGC	Office of Government Commerce
PIU	Performance & Innovation Unit, based in the Cabinet Office
RCEP	Royal Commission on Environmental Pollution
TPUK	Trade Partners UK

A fuller glossary is available on the CCPO website - this includes Kyoto Protocol abbreviations and terminology **http://www.dti.gov.uk/ccpo**