

# DANISH CLIMATE AND DEVELOPMENT ACTION PROGRAMME

A TOOL KIT FOR CLIMATE PROOFING  
DANISH DEVELOPMENT COOPERATION



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# LIST OF ABBREVIATIONS

AMG	Danida's Aid Management Guidelines
BFT	Technical Advisory Service of MFA
CDM	Clean Development Mechanism
CER	Certified Emissions Reductions
CO <sub>2</sub>	Carbon dioxide
Danida	Danish International Development Assistance
DCCD	Danida Centre for Competence Development
DCDAP	Danida Climate and Development Action Programme
DNA	Designated National Authority
EIA	Environmental Impact Assessment
ERH	Department for Business Cooperation & Technical Assistance of MFA
EU	European Union
GEF	Global Environmental Facility
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel on Climate Change of the United Nations
JI	Joint Implementation
LDC	Least Developed Countries
MDG	Millennium Development Goals
MEA	Multilateral Environmental Agreement
MFA	Danish Ministry of Foreign Affairs
MIL	Department for Environment and Sustainable Development of MFA
NAPA	National Adaptation Programmes of Action
NGO	Non-Governmental Organisation
PRSP	Poverty Reduction Strategy Paper

SEA	Danish Special Environmental Assistance
SWAP	Sector Wide Approach
TAR	IPCC Third Assessment Report
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environmental Programme
UNDP	United Nations Development Programme
WMO	World Meteorological Organization

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# 1.

## INTRODUCTION

“ *Climate change is a major development issue that needs to be addressed urgently. Unless global warming slows down, the incidence of droughts and floods will likely increase, vector-borne diseases will probably expand their reach, and many ecosystems, such as mangroves and coral reefs, will likely be put under great strain. In short, achievements in the fight against disease, hunger, poverty, and environmental degradation risk being unravelled by climate change.* ”

UN MILLENNIUM PROJECT<sup>1</sup>

Climate change already happens, and will continue in the decades to come. Without preventive action and adaptation to climate change, human life and the global environment may suffer great costs. By acting now, the costs are considered marginal compared to the costs of inaction. To reduce the negative impacts of climate change, action is therefore needed.

Climate change resulting in climate variability and extreme weather conditions is a potential cause of human and economic losses and impeded development opportunities. In particular, people in many developing countries are vulnerable due to poverty. The impacts of climate change mainly occur within agriculture, forestry, water supply,

<sup>1)</sup> Reference: [http://www.unmillenniumproject.org/reports/int\\_actions4.htm](http://www.unmillenniumproject.org/reports/int_actions4.htm)

physical infrastructure, and human health. Climate change can undermine economic opportunities, increase poverty, and lead to migrations due to natural disasters and uncertain living conditions.

Because of climate change, the outcome of development cooperation and investments in developing countries can be undermined. By taking climate change into consideration, development cooperation can be 'climate proofed'.<sup>2</sup> This will help protect investment of scarce development resources and foster climate-friendly development. Therefore, integration of climate change concerns into planning and implementation of development cooperation is wise policy and will support developing countries in coping with climate change.

Climate change is a result of complex natural and human interactions. Consequently, climate change is surrounded by considerable uncertainties. As for economic development, assessments therefore must be made to determine future trends. Assessment of risks and possible impacts from projected changes to the global climate becomes increasingly important in national planning, and specific regional predictions are often available for the use of planning and implementation of development cooperation. Lack of precise data is, however, no excuse for not addressing the challenge of climate change.

The objective of the Danida 'Climate and Development Action Programme' is to 'climate proof' Danish development cooperation in order to effectively fight poverty and promote economic and social development for present and future generations.

The Danish 'Climate and Development Action Programme' is a response to the need to address climate change in the context of development. The Action Programme, inter alia, is a follow up to the 'EU Action Plan on Climate change in the Context of Development Cooperation', which was launched by the European Council of Ministers in November 2004.

<sup>2)</sup> See glossary for definitions of terminology.



Through the 'Climate and Development Action Programme', climate change concerns will be integrated into Danish development cooperation where relevant. 'Climate Change' is not a new crosscutting theme for Danish development cooperation. Climate change, however, will be addressed as a challenge linked to the crosscutting 'environment' theme in Danish development cooperation. For this purpose, the Action Programme is set up as an integral part of the Danida Aid Management Guidelines (AMG).

The main target group of the 'Climate and Development Action Programme' is the staff working with development cooperation in the Danish Ministry of Foreign Affairs (MFA) in Copenhagen, at Danish Embassies in partner countries, and at Danish missions and embassies accredited to multilateral organisations. The Action Programme is also aimed at stakeholders in partner countries, i.e. governmental institutions, both at national and local levels, and other organisations involved in programme implementation, such as non-governmental organisations (NGOs) and civil society, the private sector, and academic and research communities.

The Action Programme provides tools for climate change screening and guidance for actions in relation to Danish development cooperation. A website for the 'Climate and Development Action Programme' is developed to support the implementation of the Action Programme.

## 2. CLIMATE CHANGE – A CHALLENGE FOR DEVELOPMENT

“ *The developing countries are expected to suffer the most from the negative impacts of climate change. This is due to the economic importance of climate-sensitive sectors (for example, agriculture and fisheries) for these countries, and to their limited human, institutional, and financial capacity to anticipate and respond to the direct and indirect effects of climate change. In general, the vulnerability is highest for least developed countries in the tropical and subtropical areas. Hence, the countries with the fewest resources are likely to bear the greatest burden of climate change in terms of loss of life and relative effect on investment and the economy.* ”

MULTI-AGENCY REPORT ON 'POVERTY AND CLIMATE CHANGE' (2002, P.5)

### **2.1 Impacts of climate change on development**

Climate change is a major global challenge and a potential threat to human welfare and to economic and social development. Therefore, climate change is also a major development challenge. The negative effects of climate change are mostly felt in developing countries. Climate change is a serious risk to the fight against poverty and could lead to a set back in years' work to protect and enhance human well-being and sustainable development.

Analyses, including those prepared for the 2005 UN Summit on reaching the Millennium Development Goals (MDG), have high-lighted that without urgent and adequate global responses to climate change, the

efforts to achieve the MDGs and other development objectives could be undermined. Similarly, climate change may undermine the efforts and outcomes of development cooperation.

Development cooperation programmes and projects are designed with explicit or implicit assumptions about the climate in which they will function. The conventional way is to assume that the climate of the past is a reliable guide to the future. This is no longer a sufficient assumption. To address climate change, the design criteria must be based on probable future climate scenarios and expected impacts.

In order to take climate change into consideration, the environmental assessment of development cooperation programmes and projects will have to address not only the effects of development cooperation on the environment, but also the impacts that imminent climate-related environmental and socio-economic changes have on development cooperation.

Sector specific risks can be identified for typical sectors in development cooperation programmes. To determine the risks to which sectors are exposed, it is necessary to examine their vulnerability to specific hazards. The potential hazards from climate change and climate variability include:

- Increased surface temperatures.
- Sea level rise.
- Decreased or increased precipitation.
- Soil erosion.
- Fluctuating and changing courses of rivers.
- Changes in frequencies and intensity of storms.
- Changing weather patterns, including drought and flood patterns.
- Glacier lake outbursts from increased melting of ice capped mountains.

Sectors that are most vulnerable to the risks of climate change and increased climate variability are:

- Agriculture: influence on crop production from higher temperatures and changes in rainfall and water supply, changes of pest and disease patterns.
- Water resources: greater evaporation, changes in rainfall, changes in ground water levels, increasing water demands in warmer climate, salt-water intrusion with sea level rise.
- Human health: greater risks of vector borne and water borne diseases, greater heat stress, and exposure to ultra-violet radiation.
- Biodiversity and natural ecosystems: greater risks of loss of vulnerable coastal and marine ecosystems including wetlands, mangroves, and coral reefs, increased risk of desertification and loss of biodiversity, impact on migratory species.
- Coastal area infrastructure: sea level rise, more severe storms.
- Housing and other infrastructure: heavier rains and storms, water availability.
- Tourism: temperature changes, sea level rise, disease patterns, and water availability.

The impacts of climate change and extreme weather events, like tropical storms and floods, can have a devastating impact on developing countries' economies. For example, climate change can cause damage to infrastructure, e.g. roads, harbours and other development projects, often funded by poor countries with a mixture of loans, soft loans and grants.

According to a UNEP study (2002), worldwide economic losses due to natural disasters appear to be doubling every 10 years. On current trends, annual losses may reach almost USD 150 billion in the next decade. Although not all natural disasters are caused by extreme weather and climate change, this gives an indication of the scale of the costs of climate change.

As an example, in 1999 and 2000 a large port terminal in a Caribbean island was devastated by unexpected weather events. Reconstruction and loss of revenues cost millions of dollars. The loss could have been reduced if proper risk assessment and higher standards of design specifications had been used. Although this would have implied an additional cost,

such cost would only have been in the 10-15 per cent range of the cost of reconstruction.<sup>3</sup>

Climate change can also lead to less visible impacts that have an influence on a large group of people. This may be the case in subsistence and commercial farming due to erosion or flooding, damage to feeder roads, and increased outbreak of tropical diseases.

The costs of such complex events are difficult to assess. However, by taking precautionary action<sup>4</sup> through risk management and up-front investments, loss of human lives and resources for development may be avoided.

The anticipated adverse impacts of climate change therefore should be addressed through use of appropriate climate change planning and management tools in development cooperation programmes. Integrating such tools in environmental assessments and design of development cooperation programmes will help climate proof development cooperation. Thereby, climate proofing becomes an integrated part of environment-friendly development policy and risk assessment of any investment in countries and sectors that are vulnerable to climate change.

## **2.2 International Cooperation on Climate Change**

The challenge of climate change can only be met through a concerted international effort and through cooperation between developed and developing countries. The United Nations Framework Convention for Climate Change (UNFCCC) is the key multilateral agreement addressing climate change.

- 3) *For less investment intensive projects, the additional cost would be less. Through cost-benefit analysis of different construction standards during project appraisal, the potential risks and expected damages may be weighed against the cost of risk mitigation options and the present value of avoided damage over the project's lifetime.*
- 4) *Principle 15 of the Declaration from the Rio Conference on Environment and Development (see glossary).*

**Box 1: United Nations Framework Convention on Climate Change (UNFCCC)**

The UNFCCC was established at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. With the Convention, the international community recognized climate change as a global challenge and human activities releasing green house gases as a contributing factor. In response to the challenge, the Climate Convention was set up to achieve “stabilization of green house gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”. Denmark along with 188 other nations has ratified the UNFCCC, which entered into force in 1994.

Through the Climate Convention, the industrialized countries agreed to stabilize their greenhouse gas emissions at the 1990 level. However, the Climate Convention did not set out internationally agreed reduction targets.

In 1997, at the third conference of the UNFCCC, agreement was reached to set up the Kyoto Protocol under UNFCCC. The Kyoto Protocol includes binding targets and instruments to address the emission of greenhouse gasses (GHG) into the atmosphere.

According to the Kyoto Protocol, developing countries do not have binding targets to reduce greenhouse gas emissions. In absolute terms, emission of GHG in developing countries will, however, soon reach levels similar to the emissions of industrialized countries. This is mainly due to strong economic growth and increasing energy consumption in major emerging economies. Against this background, international negotiations are initiated to discuss how to broaden the effort to mitigate climate change after the expiration of the Protocol’s first commitment period in 2012.

## **Box 2: The Kyoto Protocol**

The Kyoto Protocol is the only international instrument for global action to mitigate climate change. The Protocol was set up to establish internationally binding commitments for the reduction of GHG and thereby support the overall objective of the UNFCCC. The Protocol, being ratified by around 150 countries, entered into force in February 2005. The Protocol requires developed countries to reduce GHG emissions, among them carbon dioxide, by at least 5 per cent compared to the 1990 level in the first commitment period from 2008 to 2012.

According to the Protocol, Denmark has to reduce its emission of GHG by 8 per cent to 92 per cent from the base year in 1990. However, according to an agreement in the European Community to meet EU's overall emission reduction targets, Denmark has made a commitment to reduce GHG emissions by 21 per cent from the 1990 base year in the first commitment period.

The European Union is a driving force in the international efforts to address climate change. At a meeting of the European Council in March 2005, agreement was reached to work for ambitious targets as part of the international climate change regime. Increased international efforts were called for to ensure that the average global mean temperature will not increase by more than 2<sup>0</sup> Celsius compared to the pre-industrial level.

As a step to support climate change actions in developing countries, the EU has developed the 'EU Action Plan on Climate change in the Context of Development Cooperation'.

### **Box 3: EU Action Plan on Climate Change in the Context of Development Cooperation**

The EU Action Plan, launched by the European Council of Ministers on November 22, 2004, identifies four strategic priorities:

1. Raising the policy profile of climate change, both among EU development policy makers and practitioners, and in EU partner countries.
2. Support to EU partner countries for adaptation to the adverse effects of climate change.
3. Support to EU partner countries to mitigate emissions of greenhouse gases causing climate change.
4. Capacity development in EU partner countries.

The EU Action Plan translates these strategic priorities into concrete actions to be implemented collectively by the EU Commission and the EU Member States in a coordinated and complementary manner in line with their development cooperation programmes and priorities.

With the Danish ‘Climate and Development Action Programme’, steps are taken to accelerate Danish implementation of the ‘EU Action Plan on Climate change in the Context of Development Cooperation’. It signals Denmark’s recognition of climate change as a major global challenge with particularly negative impacts on developing countries.

#### **2.3 The Scientific Background to Climate Change**

Climate change is probably the most significant driver of global environmental change. The Intergovernmental Panel on Climate Change (IPCC) has defined climate change as “Any change in climate over time, whether due to natural variability, or as a result of human activities”. IPCC is the independent scientific panel of the United Nations assessing the causes and impacts of climate change (box 4).



The scientific challenge addressed by IPCC includes three main issues:

**1. Is there a climate change according to the IPCC definition?**

The question more precisely is whether there is a change in climate that may exceed the resilience of the natural and economic systems? According to scientific data compiled by IPCC<sup>5</sup>, there is enough evidence to suggest an ongoing climate change.

**2. What are the causes of climate change?**

The scientific community agrees that the accumulation of greenhouse gasses contributes to climate change. It is, however, difficult to determine the extent to which climate change can be attributed to human activities. IPCC has concluded that most of the observed global warming over the past 50 years is likely to be due to the increase in GHG attributable to human activities releasing GHG into the atmosphere from fossil fuel burning and from biomass decomposition, e.g. deforestation.

**3. What are the impacts of climate change?**

The question is how climate change will influence human livelihood, the natural ecosystems, and industrial and agricultural production. Such impacts are central to achieving key development goals, including poverty reduction. Thus, IPCC has assessed that the negative effects of climate change are mostly felt in developing countries. While there is agreement that climate change can cause severe negative impacts, it is also recognized that climate change may have positive impacts.

5) *IPCC Third Assessment Report (2001) – [www.ipcc.ch](http://www.ipcc.ch)*

#### **Box 4: Scientific background to climate change**

The UN Intergovernmental Panel on Climate Change (IPCC) was established in 1988. The role of the IPCC is to assess, on a comprehensive, objective, open, and transparent basis, the scientific and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation. The IPCC draws on a network of several hundred scientists.

IPCC's Third Assessment Report from 2001 concludes "that the globally averaged surface temperatures have increased by  $0.6 \pm 0.2^\circ \text{C}$  over the 20th century, and that, for the range of scenarios developed in the IPCC Special Report on Emissions Scenarios, the globally averaged surface temperature is projected by Global Circulation Models to warm 1.4 to 5.8°C by 2100 relative to 1990, and globally averaged sea level is projected by models to rise 0.09 to 0.88 m by 2100" These changes take place against a background of an increase in anthropogenic emissions of greenhouse gases over the last 250 years.

According to IPCC, regional changes in climate, particularly increases in temperature, have already affected a diverse set of physical and biological systems in many parts of the world. These changes lead to sea level rise, changes in precipitation patterns and increase in the frequency and magnitude of extreme weather events such as droughts, floods and storms.

The IPCC findings illustrate, that even if anthropogenic emissions of greenhouse gases are eliminated immediately, the inertia of the climate system will make temperature continue to rise for the next 30 years and sea level rise a lot longer. Therefore, adaptation to climate change is needed.

### 3.

## THE “TWO LEG” APPROACH IN CLIMATE AND DEVELOPMENT

Efforts to address climate change must “walk on two legs”. The one leg is to support *adaptation* to climate change. The other is to enhance *mitigation* of climate change.

1. *Adaptation* to climate change includes measures for adjusting to the impacts of climate change and managing the risks.
2. *Mitigation* of climate change includes policies and measures to reduce the emission of greenhouse gases. In principle, mitigation efforts have the same effect on stabilizing atmospheric GHG concentrations in the atmosphere irrespective of where in the world such efforts are carried out.

While adaptation is a ‘cure’ to alleviate negative impacts and mitigation is ‘prevention’, it is adaptation that is most closely linked to poverty reduction and the development agenda. Thus, in accordance with the principle of common, but differentiated responsibilities<sup>6</sup>, developing countries often emphasize adaptation to climate change as the key concern for which financial support is needed, and argue that industrialized countries should continue to take the lead in mitigation.

### **3.1 Adaptation to Climate Change**

Adaptation is the management of risks and vulnerability associated with climate change and extreme weather events. UNDP has defined adapta-

6) *Principle 7 of the Declaration from the Rio Conference on Environment and Development.*

tion to climate change as: *“a process by which strategies to moderate, cope with, and take advantage of the consequences of climate events are enhanced, developed and implemented”*.

According to the IPCC, adaptation is *“adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”* Both definitions include the possibility of adaptation to take advantage of positive events due to climate change.

In practical terms, a number of actions exist to adjust to, or avoid the impacts of climate change. Adaptation options include:

- Protection against sea-level rise, where possible, including salt-water intrusion in water supply.
- Strengthening primary health care as a response to changes in distribution of vector borne diseases.
- Changes in design specifications and building codes to address climate change and more frequent extreme weather conditions.
- Rehabilitation of natural ecosystems, e.g. mangroves as a barrier against violent storms and floods.
- Construction of infrastructure to stand higher level of water run-off, e.g. wider bridges and larger culverts in roads, or reduced construction demands if less precipitation is anticipated.
- Risk adjustments to address variations in crop production in agriculture, e.g. use of more robust crop varieties and access to crop insurance.
- Management of water resources in order to maintain access to water and alleviate risks of drought or protect against floods.

The above list indicates that the management of risks of climate change includes a range of opportunities for adaptation in development cooperation that are linked to poverty reduction.

Although knowledge about climate change impacts on development is still limited, Danish development cooperation may contribute directly and indirectly to adaptation. Adaptation should be integrated into the broader development agenda.

Examples of adaptation in Danish development cooperation are the management of water resources in a regional programme in Southern Africa, and risk management in agriculture through crop improvement, and access to credits for diversification of production. Adaptation also includes the assessment of extreme weather on infrastructure, e.g. road construction in transport sector programmes.

Generally the cost of taking precautionary action to adapt to climate change will be low compared to the cost of in-action. This, for example, could be the case in increasing the distance of new buildings, roads, and boreholes from coastlines. However, given the uncertainty of future climate change, it is important that costly adaptation measures are carefully assessed and compared to the risk of not taking precautionary action.

The recognition of an urgent need for adaptation in the most vulnerable countries has led to proposals from developing countries, NGOs, and research institutions for strengthening the role of adaptation in the international climate regime.

At the UN climate change conference in Marrakech in 2002, a special work programme for Least Developed Countries (LDCs) was adopted. One of the key features of the programme is the requirement for LDCs to prepare National Adaptation Programmes of Action (NAPAs). Adaptation efforts are particularly important in the most vulnerable countries, such as LDCs and Small Island Developing States.

Even if mitigation is successful, there will be impacts from climate change and a need for adaptation. The reason is that the inertia of the climate change system may cause the concentration of greenhouse gases to continue to increase and global temperatures to continue to rise.

### **3.2 Mitigation of Climate Change**

A significant contributing factor leading to climate change is the fact that most countries rely on fossil energy sources (coal, oil, and gas) resulting in emission of CO<sub>2</sub> and other GHG. Another contributing factor is the release of CO<sub>2</sub> and methane from organic soils and biomass due to drainage of land, rice cultivation, shifting cultivation, and deforestation.

Mitigation is defined as an intervention to reduce human-caused net emission of greenhouse gases. Measures for mitigation include:

- Reduction at the source of emissions from use of fossil fuels by means such as energy efficiency, fuel switching (e.g. from coal to gas), renewable energy, and clean coal technology.
- Capturing of waste greenhouse gases, such as methane emitted from landfills with organic waste.
- Creating sinks for storing carbon through natural resource management options, including land use and forest management that lead to the sequestration of carbon in organic matter in soils and biomass, in particular in trees.

According to the Kyoto Protocol, emission reduction targets have not been set for developing countries. With a significant increase in energy consumption in many developing countries, it is, however, important to develop options that allow developing countries to pursue climate-friendly (low-carbon) development strategies.

The Kyoto Protocol includes two project based flexible mechanisms for industrialized countries to reduce emissions without relying only on domestic measures, i.e. the Clean Development Mechanism (CDM) and Joint Implementation (JI)<sup>7</sup>. CDM gives industrialized countries the opportunity to finance mitigation projects in developing countries with the aim of contributing to sustainable development while also helping industrialized countries meet their reduction commitments.

Because CDM projects by definition produce CO<sub>2</sub> credits, such projects are distinct from development cooperation in areas such as preparation, financing, and monitoring requirements.

Danish development cooperation may contribute directly and indirectly to partner countries' mitigation efforts.

7) *Joint Implementation gives industrialized countries an opportunity to acquire carbon credits from supporting projects in other industrialized countries and is not relevant for developing countries.*

## Box 5: Clean Development Mechanism

The Clean Development Mechanism (CDM) is one of the flexible mechanisms included in the Kyoto Protocol to help mitigate climate change. The CDM allows industrialized countries to invest in emission reduction projects in developing countries and thereby generate credits, Certified Emissions Reductions (CER), for the use of the investor to meet national GHG reduction target. As stipulated in article 12 of the Protocol, the objective of CDM also is also to assist developing countries achieve sustainable development.<sup>8</sup>

Denmark provides support to CDM priority countries: Malaysia, Thailand, South Africa, China, and Indonesia. Danish embassies in these countries have an important role to play in working together with the host governments and other local partners to identify and develop CDM projects. Danish support includes helping set up Designated National Authority (DNA) for approving CDM projects.

Denmark is also engaged in purchase of CDM credits from projects developed through the Mixed Credits Facility (soft loans). In addition to the direct procurement of credits from projects, Denmark also purchases indirect credits through the Danish Carbon Fund, managed by the World Bank.

Whereas official development assistance cannot be used to purchase Certified Emission Reductions (CERs), development assistance may be used to build capacity to develop CDM projects.

8) *Kyoto Protocol, Article 12: "The purpose of the clean development mechanism shall be to assist Parties not included in Annex I [i.e. developing countries] in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I [i.e. industrialized countries] in achieving compliance with their quantified emission limitation and reduction commitments".*

Examples of mitigation efforts in Danish development cooperation include investments to reduce the use of fossil fuels through renewable energy (solar, wind energy, and hydro-power). Often the potential exists to pursue on- and off-grid renewable energy options instead of diesel generators as the supplier of energy. The aim is to provide energy services for poor and remote locations. In addition, improvements in energy efficiency have a great potential for reduction of fossil fuel based energy production.

As an example, Danida has supported the promotion of electrical mini-vans for public transport in Nepal. Electricity for the vehicles is generated from hydro-power, and recharging takes place during night time when power consumption for other purposes is low.

In another example from South Africa, a project has improved energy efficiency for buildings and household appliances. The aim is to reduce energy costs for poor people and postpone investments in new power plants.

Sinks for storing carbon can be promoted through development cooperation in programmes that improve management of forests and increase the area and volume of forests. For example, the expansion of forest areas and increase in standing volume and carbon storage is a visible result of the Danish support to community forestry in Nepal.

However, the use of sinks projects as part of the CDM is controversial. The reservations against sinks projects include that CO<sub>2</sub> is not permanently stored in forest and that sinks projects may lead to monocultures with low biodiversity and few livelihood options. Denmark along with other EU member states, therefore, is not actively promoting sinks projects as part of CDM. Similarly, Denmark along with other EU member states also does not actively engage in large hydro-power projects due to the potential negative environmental and social impacts associated with large dams.

When pursuing renewable energy options, positive and negative environmental and social impacts must be assessed. Such impacts may include changes in employment patterns related to local off-grid energy plants and resettlement of local communities related to hydro-power.



Mitigation should be pursued as an integral part of promoting sustainable development and improving living conditions for present and future generations. In particular, mitigation should be pursued where mitigation presents a “win-win” situation in relation to poverty reduction such as developing sustainable forest management systems and improving energy efficiency.

By taking actions to mitigate climate change, potential damages caused by climate change can be reduced or delayed. Delaying the negative impacts of climate change through mitigation will give vulnerable countries more time to initiate measures and build capacity to adapt to climate change.

## 4. DANISH DEVELOPMENT COOPERATION AND CLIMATE CHANGE

The Danida ‘Climate and Development Action Programme’ outlines actions to be taken in Danish development cooperation in order to address the challenges of climate change and to mainstream climate change actions into development cooperation.

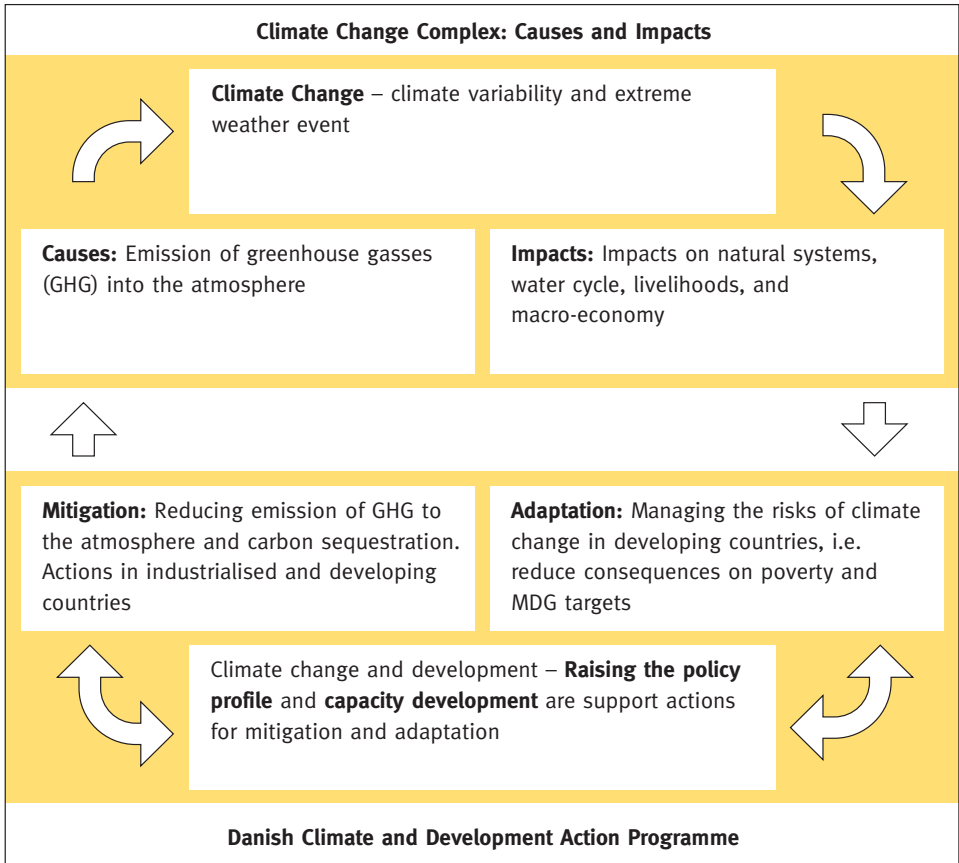
In line with the EU Action Plan, the Danish ‘Climate and Development Action Programme’ includes the following four elements:

1. Raising the policy profile of climate change in multilateral and bilateral development cooperation to address adaptation to, and mitigation of climate change.
2. Adaptation to climate change in development cooperation programmes.
3. Mitigation of climate change in the context of development cooperation programmes.
4. Capacity development to address the challenge of climate change and take appropriate actions in development cooperation programmes and national programmes in partner countries.

By raising the *policy profile* of climate change, the aim is to enable the development policies and Danish development assistance to address climate change. In addition, through support to *capacity development* developing countries will strengthen their ability to address *adaptation* to

and *mitigation* of climate change in their national development programmes.

The figure below illustrates the relations between the climate change complex and the elements of the ‘Climate and Development Action Programme’.



#### 4.1 Key Principles on Climate Change and Development Cooperation

##### Objectives

- Interventions in the area of climate change will help ensure that adaptation and mitigation, where relevant, is considered in order to improve the quality of Danish development cooperation.

- Integrating climate change into Danish development cooperation will mainstream climate change as part of the broader sustainable development agenda in cooperation with Danish development partners.
- Climate change will be addressed in Danish development cooperation along with economic, social, and environmental risk factors and be included as part of ‘environment’ as a cross-cutting issue.

#### *Adaptation*

- Investments, including those supported through Danish development cooperation, must be ‘climate proof’, i.e. must be protected from negative impacts of climate change, climate variability, and extreme weather events. The risk assessment should be based on projected rather than historic weather records.
- Adaptation is a development issue. The impacts of climate change have a direct influence on achieving the Millennium Development Goals, fighting poverty, and meeting other development objectives.

#### *Mitigation*

- Opportunities should be identified for the partner country to pursue climate-friendly energy solutions. This would help ‘climate proof’ national development plans within the general dialogue with the partner country. While climate-friendly strategies are relevant in all countries, strategies for low-carbon development are particularly important in countries with emerging industrialization and rapid economic growth.
- Mitigation options can be explored in all sectors of the economy. However, the potential for larger emission reductions and sinks mainly lie in the areas of energy supply and use, transport, forestry, industry, waste, and in other sectors that rely heavily on energy use.

#### *Procedures for collaboration and coordination*

- ‘Climate-friendly’ development strategies and processes shall be country-owned and country-driven.
- Integration of climate change considerations shall be undertaken within the existing national and Danida environmental assessment framework, with little modification to existing processes and procedures.
- Mainstreaming climate change issues into development planning and implementation implies that climate change should be integrated

into existing policies and strategies. Therefore, parallel structures for handling climate change should be avoided, e.g. National Adaptation Programmes of Action shall be integrated in overall development policies and strategies of the partner country.

- To ensure country ownership to climate related activities, not only governments, but also affected communities, and the country's private sector, NGOs, and research institutions need to take active part.
- To draw on traditional knowledge on adaptation, and as a supplement to modern knowledge and technology, existing indigenous solutions should be taken into account, especially in relation to natural resource management.
- Donors and their partners must work together and harmonize their efforts along the lines agreed upon in the OECD guidance on 'Harmonising Donor Practices for Effective Aid Delivery'.<sup>9</sup>

#### **4.2 Areas of Climate Change Interventions**

Integration of climate change concerns in Danish development cooperation will make use of 'windows of opportunities' for raising the policy issues and influencing the design of development programmes and infrastructure investments. These opportunities emerge in particular with:

- High-level consultations with multilateral and bilateral partners.
- Development of country strategies for Danish development cooperation.
- Formulation of sector programme support and mixed credit projects.
- Technical consultations and joint sector reviews.

Other opportunities for 'climate change integration' relate to cooperation with national and international NGOs, cooperation with civil society organisations, research institutions, and through private sector programmes. Activities in these areas are not directly covered in the 'Climate and Development Action Programme'. However, climate change considerations linked to these areas of cooperation may also benefit from the principles and actions of the Action Programme.

<sup>9</sup>) *Guidance agreed upon with the 'Paris Declaration on Harmonisation':* ([www.aidharmonization.org](http://www.aidharmonization.org)).

With this Action Programme, climate change screening and related actions will be identified to address climate change in the following contexts:

- Climate Change in multilateral development cooperation (chapter 5).
- Climate Change in bilateral development cooperation.
  - Country Programmes: Country Strategies and Annual Consultations (chapter 6).
  - Sector Programmes: Programme Development and Annual Programme Reviews (chapter 7).
  - Mixed credits projects (chapter 8).

Within each context, as indicated in chapters 5-8, the following elements are identified:

- Target group, i.e. who in the Ministry of Foreign Affairs/Danida are responsible.
- Entry points, i.e. ‘windows of opportunity’ in the AMG or other Danida actions.
- Basic principles, i.e. how to address the issue of climate change, where relevant.
- Screening points to identify the climate change issues to be addressed.
- Proposed actions divided into four sections according to the four elements of the Action Programme.

In implementing the actions listed in chapters 5-8, Danish embassies and foreign missions may obtain technical support from MFA in line with the procedures outlined in the AMG.

### **4.3 Screening for Climate Change**

Climate proofing development plans and programmes is relevant in various contexts and at various levels. In Danish partner countries that are particularly vulnerable to climate change, it may be relevant to assist in ensuring that overall national development plans and strategies are screened for climate change. Where support to climate screening at

national level may be requested, Denmark is prepared to provide assistance that is not directly linked to the Danida country programme<sup>10</sup>. Support of this nature should be carefully coordinated with relevant national authorities and multilateral and bilateral partners active in the area.

Regarding Danish bilateral development cooperation, screening for climate change impacts is relevant for Danida sector programme support and mixed credits projects. Climate change screening will be integrated as part of the mandatory Danida environmental screening for sector programmes and mixed credit projects. The elements of the climate change screening are:

- Addressing climate change in technical missions and relevant consultation meetings.
- Identification of design modifications that are required to address climate change.
- Assessment of adaptation actions that can be included as part of risk management.
- Assessment of mitigation options that can be pursued in development plans and strategies.
- Identification of relevant capacity development related to climate change in projects and programmes.
- Addressing climate change impacts in strategic environmental assessments and in full or partial environmental impact assessments, and related actions.

*10) Support for national climate change screening may be provided separately through the Ministry of Foreign Affairs.*

## 5. MULTILATERAL DEVELOPMENT COOPERATION

### **Target**

This chapter is for multilateral departments in the Ministry of Foreign Affairs, and relevant Danish missions and embassies dealing with multilateral organisations and international NGOs.

### *Entry points*

- Annual negotiations with UN organisations, international financial institutions, regional organisation, international NGOs, and other multilateral partners.
- International development conferences.
- Negotiations of Multilateral Environmental Agreements (MEA).

From a climate perspective, multilateral meetings tend to fall in two categories. Either climate change is the key issue or climate change is addressed only marginally, if at all.

- In the first category of meetings (UN meetings on climate, extreme weather, energy etc.), delegates and participants often are specialised climate change negotiators. Although there will be no need to raise the policy profile of climate change at such meetings, it may be relevant to help ensure that discussions on climate change are linked to the broad perspective of promoting poverty reduction and sustainable development.
- In the other category (UN Summits, UN governing bodies, etc.), delegates might have limited insights as to the magnitude of the climate change challenge. At such meetings, efforts are needed to



ensure that climate change is addressed within the overall context of the agenda of the meeting.

*Basic principles*

- Convergence of views in order to bring forward policies and measures that are needed to strengthen the global effort to address climate change.
- Build confidence and trust between developed and developing countries and avoid deadlock and confrontation. There is also a task in identifying the potential for alliances between Denmark/EU and developing countries.
- Integration of climate change should, where relevant, be included on the agenda at annual consultations with UN organisations, international financial institutions, and international NGOs. This is the responsibility of the Multilateral Departments of the MFA and Danish missions and embassies with delegated authority. Technical input, including 'agreed EU and UN language', may be obtained from MIL and BFT.

*Initial screening points*

- For annual consultations, identify whether the organisation has a policy or action programme on climate change. Does the organisation implement activities relevant for adaptation and mitigation? Are investment projects 'climate proofed'?
- Stress the importance of in-country ownership and aid coordination of projects related to climate change activities, e.g. GEF funded projects. This requirement is stressed as being universal for aid cooperation.

<b>Actions</b>	<b>Multilateral Development Cooperation</b>
Raising the policy profile of climate change	<p>Request information on policy or action plans on ‘climate proofing’ of development programmes/projects, e.g. investment projects.</p> <p>Interaction with international NGOs and research communities for information sharing and coordination.</p>
Adaptation to climate change	Identify relevant multilateral partners (UNDP, UNEP, GEF, World Bank etc.) and scope for cooperation on adaptation to climate change in areas such as policy dialogue, implementation strategies, and financing.
Mitigation of climate change	Identify relevant multilateral partners (UNDP, UNEP, GEF, World Bank etc.) and scope for cooperation on mitigation of climate change in areas such as policy dialogue, implementation strategies and financing.
Capacity development in developing countries	Ensure that national level implementation of climate change projects are supported by adequate national capacity development and ownership.

## 6. BILATERAL DEVELOPMENT COOPERATION: COUNTRY PROGRAMMES

### **Target**

Responsibility is with Danish embassies in partner countries.

### *Entry points*

- Participation in PRSP preparation and other relevant national planning processes.
- Preparation of Country Strategies for development cooperation.
- High-level consultations on development cooperation.

### *Basic principles*

- The collaboration shall help ensure national ownership and aid coordination on climate change activities in both mitigation and adaptation actions.
- Integrating climate change concerns in Danish bilateral development cooperation will primarily be relevant in Danish programme countries<sup>11</sup> and countries receiving Special Environmental Assistance (SEA countries).<sup>12</sup>
- Climate change actions for mitigation and adaptation will not be equally important in all partner countries. Relevant areas for action will be based on country specific information, including strategies

<sup>11)</sup> *Bangladesh, Benin, Bhutan, Bolivia, Burkina Faso, Egypt, Ghana, Kenya, Mozambique, Nepal, Nicaragua, Tanzania, Uganda, Vietnam, Zambia (July 2005).*

<sup>12)</sup> *Thailand, Cambodia, Vietnam, Indonesia, Malaysia, China, Kenya, Tanzania, Zambia, Mozambique, South Africa (July 2005).*

and assessments in national communications to UNFCCC and National Adaptation Programmes of Action (NAPA).

- Adaptation will be relevant in countries that are considered to be at a high risk with regard to negative climate change effects. While purchase of CDM credits can be made from a wide range of countries, engagement in CDM projects is relevant in countries that are targeted by Denmark for acquisition of CDM credits (CERs)<sup>13</sup>.

*Initial screening points*

- Determine country vulnerability and risks from climate change and extreme weather (e.g. coastal areas, river deltas, fragile ecosystems, snow capped mountains, and dependency on agriculture, forestry, and fisheries).
- Has the country submitted a national communication to the UNFCCC?<sup>14</sup> What are the main issues concerning vulnerability, adaptation and mitigation in the national communication?
- Has the country or is the country in the process of preparing a NAPA?
- Are climate change concerns included in the PRSP? If so, how are the concerns relevant for the Danida country assistance strategy?
- Has specific country studies been undertaken in relation to climate change and adaptation?

<sup>13</sup>) *CDM priority countries are: Thailand, Malaysia, South Africa, Indonesia, and China (July 2005).*

<sup>14</sup>) *All Danida partner countries have ratified the UNFCCC, and all but Burkina Faso, Nepal and Zambia have ratified, approved, or made accession to the Kyoto Protocol (July 2005).*

<b>Actions</b>	<b>Bilateral Development Cooperation – Country Programmes</b>
Raising the policy profile of climate change	<p>Raise relevant climate change considerations at high-level and technical consultation meetings.</p> <p>Share information/documents to highlight importance of climate change in PRSP.</p> <p>Introduce climate change screening tools and other assessment tools.</p> <p>Bring climate change risks to the attention of cooperation partners, including planning and finance ministries in partner countries.</p> <p>Encourage participation of partner country’s environment ministry in high-level consultations.</p>
Adaptation to climate change	<p>Identify and consult government cooperation partners (sector ministry, environment ministry, NAPA preparation team, meteorological unit, etc.).</p> <p>Assess country specific vulnerability and risks of climate change.</p> <p>Ensure climate proofing of Danish assistance and promote climate proofing of other national programmes.</p>

<b>Actions</b>	<b>Bilateral Development Cooperation – Country Programmes</b>
Mitigation of climate change	<p>Pursue relevant opportunities for ‘low-carbon development path’, e.g. options for energy efficiency and renewable energy initiatives across sectors, if relevant, within the country programme.</p> <p>Pursue ‘passive’ mitigation options, e.g. sinks in forestry, rehabilitation of community forests, emission reductions in the energy sector, thereby combining poverty focused programmes with reduced GHG emissions.</p>
Capacity development in developing countries	<p>Encourage/support national climate change capacity needs assessments.</p> <p>Consider support for national climate change screening and stocktaking of relevant climate related national plans and strategies, including support for preparation of National Communications and NAPAs and their integration in PRSPs (ref. para. 4.3).</p> <p>Consider scope for support to climate change negotiator(s) and national cross-sector integration of climate change.</p>

## 7. BILATERAL DEVELOPMENT COOPERATION: SECTOR PROGRAMMES

### **Target**

Responsibility is with Danish Embassies in partner countries.

### *Entry points*

- Sector planning and sector programme reviews.
- National sector working groups/sector policy development processes.
- Climate change considerations will be integrated within each main sector supported through the bilateral assistance. As sectors become fully integrated with national development frameworks, the integration of climate change issues will be coordinated through the national sector policy.
- Together with national partners and other development partners, Danida may support the conduct of general or sector specific vulnerability assessments depending on identified needs, e.g. through strategic environmental assessments.

### *Basic principles*

- Identify climate change issues when designing and reviewing sector programmes and sector components. Main sectors are water, agriculture, health, infrastructure/transport, environment, energy, and education.
- Adaptation options are local and sector specific, and can be directly linked to the poverty reduction interventions by addressing vulnerability and management of climate change risks.
- Mitigation options are sector specific and mostly indirect (i.e. secondary to the objective of poverty reduction), with particular potential related to energy supply and demand (e.g. renewable energy,

energy efficiency), land use (e.g. carbon sinks in forests), industry, and waste.

*Initial screening points*

- Address climate change concerns in Terms of Reference (ToR) of relevant sector missions.
- Identify sector specific climate-friendly approaches and issues of vulnerability that may pose risks to the programme objective and outputs.
- Identify information relevant for climate change in national sector policies and strategies.
- Identify sector relevant information, if any, in national communications to UNFCCC.
- Use information prepared for country level climate change assessment (chapter 6). If this has not been prepared then use the national level check lists as well.



<b>Actions</b>	<b>Bilateral Development Cooperation – Sector Programmes</b>
Raising the policy profile of climate change	<p>Share information/documents to highlight importance of climate change with relevant sector ministry.</p> <p>Support development of climate change screening tools and other climate change assessment tools for the sector.</p>
Adaptation to climate change	<p>Include climate change concerns in ToR of sector planning and review missions.</p> <p>Screening (climate-proofing) of sector programmes for adaptation to climate change. Include the climate change screening together with the mandatory environmental screening.</p> <p>Assess the Danish sector programme support in context of national adaptation policies and identify scope for support</p>

<b>Actions</b>	<b>Bilateral Development Cooperation – Sector Programmes</b>
Mitigation of climate change	<p>Include climate change concerns in ToR of sector planning and review missions.</p> <p>In sector programme support, identify options for mitigation of climate change, i.e. reduced emission of GHG in line with the development objective of poverty reduction (e.g. renewable energy or carbon sequestration through afforestation and reforestation).</p> <p>In selected CDM priority countries, identify scope for CDM projects and, if relevant, options for Danish purchase of CDM credits.</p>
Capacity development in developing countries	<p>Include elements of relevant capacity development in relation to climate change related activities.</p> <p>Involvement of counterparts in project development and assessment.</p>

## 8. BILATERAL DEVELOPMENT COOPERATION: MIXED CREDIT PROJECTS

### **Target**

Responsibility is with the Mixed Credit Unit in the Ministry of Foreign Affairs.

### *Entry points*

- Climate change screening together with the mandatory environmental screening of proposed projects.

### *Basic principles*

- Project investments must be climate-proofed as part of the investment feasibility assessment to mitigate risks from climate change and extreme weather events.
- In addition to historic climate information, climate risk assessments should take projected climate variability into account.

### *Initial screening points*

- Include climate change risk assessment in ToR for project appraisal/feasibility.
- Identify information relevant for climate change in national sector policies and strategies.
- Identify relevant information, if any, in national communications to UNFCCC.

<b>Actions</b>	<b>Mixed Credit Projects</b>
Raising the policy profile of climate	Climate change issues to be highlighted, when relevant, during consultations with host country and project developer.
Adaptation to climate change	Include climate change and extreme weather as part of the assessment of the appraisal and feasibility of infrastructure investments ("climate proofing").
Mitigation of climate change	<p>Promote investment in mitigation projects, e.g. renewable energy, transport projects, and landfill gas extraction.</p> <p>Consider CDM potential of projects, as part of project feasibility.</p>
Capacity development in developing countries	<p>Climate change issues to be highlighted during discussions with host country.</p> <p>Involvement of counterparts in project development and assessment.</p>

## 9. IMPLEMENTATION OF THE CLIMATE AND DEVELOPMENT ACTION PROGRAMME

This section outlines the roll-out of the ‘Climate and Development Action Programme’. Successful implementation of the Action Programme will improve the effectiveness of Danish development cooperation and reduce risks. Through Danida Aid Management Guidelines (AMG), the Action Programme is integrated into existing development aid procedures and policies, in order to ensure that climate change, where relevant, is addressed as one of several critical development factors.

### **9.1 Early Lessons, Good Practice, and Benchmarks**

Linking the ‘Climate and Development Action Programme’ to the AMG will help ensure that Danish development cooperation is climate proofed at critical stages of strategy, programme and project development, and implementation.

In addition to the requirements of the AMG, new specific policy requirements for implementation of the Action Programme are not introduced. However, given existing resource constraints, there is a risk that implementation of the Action Programme may be given insufficient priority and that lessons and good practice may not spread fast enough. Therefore, a targeted approach will be taken to ensure follow-up and early action.

Benchmarks for rolling out the Action Programme include a minimum of three bilateral (national or sector level) or multilateral actions in 2005, and a minimum of five annual bilateral or multilateral actions in 2006-2007. If needed, additional assistance for targeted actions may be made available.

### *Actions*

- Climate change screening to be linked to the mandatory environmental screening process of the AMG and aligned with the existing Environmental Screening Note.
- Early lessons and good practice on integrating climate change considerations, to be obtained from dialogues with partner countries and multilateral partners and from selected sector programmes (new or on-going), particularly on adaptation.
- Additional assistance to be offered to assist partner countries in early actions, stocktaking, and national climate change screening (ref. para. 4.3).

### **9.2 Aid Management Guidelines, Internal Capacity Development, Knowledge Sharing**

The 'Climate and Development Action Programme' is designed as an integral part of the Danida Aid Management Guidelines, linked to the Guidelines for Programme Management.<sup>15</sup>

An operational website on climate change and development is developed as part of the Danida environmental professional network established by Danida's Centre for Competence Development (DCCD).<sup>16</sup> The website is a 'living' instrument. Based on chapters 5-8 of this Action Programme, the website contains simple screening and action tools. As experience with the Action Programme is gained, the website will include examples from Danida policy dialogue, adaptation and mitigation in sector and country programmes, CDM activities, and climate proofing of mixed credit projects.

By including climate change and development as an element in relevant DCCD training courses, Danish development practitioners will be familiarised with the 'Climate and Development Action Programme'. This will happen in Copenhagen as well as in the field. The aim of such training is to ensure that best use is made of the Action Programme and the associated tools.

<sup>15</sup>) *Danida Aid Management Guidelines: [www.amg.um.dk](http://www.amg.um.dk)*

<sup>16</sup>) *Professional network to be accessed at: [www.danida-networks.dk](http://www.danida-networks.dk)*

Knowledge sharing is important. Therefore, dialogue on climate change and development will continue with a wide range of stakeholders in Denmark and abroad, including development practitioners, the Danish 'Research Network for Environment and Development', and the UNEP Risø Centre on Energy, Climate Change, and Sustainable Development.

#### *Actions*

- Based on user feed-back, regularly update the environmental professional network website on the Climate and Development Action Programme, including the screening toolbox.
- DCCD internal training as part of the roll-out of the Climate Change and Development Action Programme.
- Dialogue on Action Programme and toolbox with partner countries, other donors, development practitioners, and research institutions.

### **9.3 Feed-back and Review**

Through implementation of the Action Programme and by making use of the screening tools, experience will be gained. In order to develop the Action Programme further, feed-back from Danish embassies and development practitioners, partner governments, other stakeholders in partner countries, and from other donors is important.

Although general feed-back is welcome at all times, it is not expected that Danish embassies and other stakeholders carry out separate reporting on the use of the Action Programme and toolbox. By using established channels of communication, feed-back, therefore, should be included as part of normal reporting related to annual planning processes, consultation meeting, technical missions etc.

A review of the Action Programme will be made in year 2008. The objective of the review will be to assess the usefulness of the Action Programme and the toolbox, collect and disseminate best practice, and make adjustments in the Action Programme and the toolbox as necessary.

Furthermore, experience from implementing the Action Programme and the toolbox will be shared with EU partners as part of the overall review of the implementation of the three-year EU Action Plan on Climate Change in the Context of Development Cooperation. Thereby, Danish

experience will feed into EU considerations on further action beyond 2008.

*Actions*

- Feed-back from Danish embassies and other stakeholders to Danida Copenhagen on use of the Action Programme and 'lessons learned'.<sup>17</sup>
- Review the Action Programme and toolbox by 2008.
- Share lessons with EU partners for developing further action.

<sup>17)</sup> *Feedback to mil@um.dk*



## 10. GLOSSARY

**Adaptation:** A process by which strategies to moderate, cope with, and take advantage of the consequences of climate events are enhanced, developed and implemented”.

**Adaptive capacity:** The ability of people and systems to adjust to climate change.

**Carbon sinks/carbon sequestration:** Carbon sinks are organic matter that allows storing or sequestration of carbon dioxide. Sinks include soils and biomass, particularly trees.

**Certified Emission Reductions (CER):** Reductions of greenhouse gases achieved by a Clean Development Mechanism (CDM) project – also referred to as CDM credits. CERs can be sold or counted towards industrialized countries’ reduction commitments. Reductions must be additional to any that would otherwise occur.

**Clean Development Mechanism (CDM):** One of the three flexible mechanisms established by the Kyoto Protocol. The instrument is flexible, because it allows industrialized countries to invest in emission reduction projects in developing countries with potential for cost-effective emission reductions (see box 5).

**Climate Change:** Any change in climate over time whether due to natural variability or because of human activity. Human activity leading to climate change primarily includes emission of greenhouse gases into the atmosphere, leading to less radiation of heat and global warming.

**Climate Proofing:** Actions to ensure that development efforts are protected from negative impacts of climate change, climate variability, and extreme weather events and to ensure that climate-friendly development strategies are pursued to delay and reduce damages caused by climate change.

**Climate Variability:** Reflects shorter-term extreme weather events, such as tropical hurricanes and the El Niño Southern Oscillation (ENSO), and North Atlantic Oscillation (NAO).

**Coping:** The immediate actions in the face of an event or changes, and ability to maintain welfare (in contrast to adaptation, which refers to long-term adjustments to the framework within which coping takes place).

**Disaster:** A serious disruption of the functioning of a society, causing widespread human, material, or environmental losses. These may exceed the ability of the affected society to cope, using its own resources.

**Extreme Event:** Event departing markedly from the average values or trends, and that is exceptional. Mostly, the return period substantially exceeds 10 years.

**Fuel Switching:** Reduce greenhouse gas emissions by switching from high-carbon to lower-carbon emitting energy sources, for example from coal to gas.

**Global Warming:** Human activity leading to climate change primarily includes emission of greenhouse gases (e.g. carbon dioxide and methane) into the atmosphere, leading to less radiation of heat and global warming.

**Greenhouse Gases:** Principally carbon dioxide (CO<sub>2</sub>). Other gases are methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorcarbons (HFCs), perfluorcarbons (PFCs), and sulphurhexafluoride (SF<sub>6</sub>).

**Low-carbon Development Path:** Climate-friendly energy policies with emphasis on renewable energy, clean energy, energy efficiency, and other measures to reduce reliance on fossil fuels (coal, oil, and gas).

**Mitigation:** A human intervention to reduce or store anthropogenic emission of greenhouse gases and thereby lessen climate change.

**National Adaptation Programme of Action (NAPA):** National Adaptation Programmes of Action are intended to communicate priority activities addressing the urgent and immediate needs and concerns of Least Developed Countries (LDCs), relating to adaptation to the adverse effects of climate change.

**National Communication:** The requirement to prepare a national communication is stipulated in article 12 of the UNFCCC. Preparation of national communications is mandatory for all parties to the Climate Convention except for Least Developed Countries. Generally, national communications are prepared at intervals of 3-5 years and must include information such as inventories of emissions, policies and measures, and proposed projects for financing.

**Precautionary Principle:** As per Article 15 of the Rio Declaration (1992), “...where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.

**Resilience:** The amount of change a system can undergo without changing state.

**Risks:** The expected number of lives lost, persons injured, damage to capital stock, and disruption of economic activity due to a particular natural hazard. The expected losses are consequently the product of a specific risk.

**United Nations Framework Convention on Climate Change (UNFCCC):** The international response to climate change, whose objective is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system – in this text referred to as the Climate Convention (see box 2).

**Vulnerability:** The combination of the sensitivity of people and natural systems to adverse socio-economic and environmental effects of climate change and the ability to cope with them.

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