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**National communications and greenhouse gas inventory data from**

**Parties included in Annex I to the Convention**

**Compilation and synthesis of fourth national communications**

**Compilation and synthesis of fourth national communications**

**Note by the secretariat**

**Addendum**

**Financial resources, technology transfer, vulnerability, adaptation and other issues relating to the implementation of the Convention by Parties included in Annex I to the Convention**

*Summary*

This document contains the second part of the compilation and synthesis report of the fourth national communications submitted to the secretariat by Parties included in Annex I to the Convention. It provides information on a range of issues relating to the implementation of the Convention, such as vulnerability assessment, climate change impacts and adaptation measures; financial resources and transfer of technology; research and systematic observation; and education, training and public awareness.

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## I. Introduction

1. The compilation and synthesis report of fourth national communications (NC4) by Parties included in Annex I to the Convention (Annex I Parties), prepared in accordance with decision 7/CP.11, consists of three separate documents. The main report, which includes information on all reporting elements following the UNFCCC reporting guidelines is published in two separate parts: document FCCC/SBI/2007/INF.6/Add.1 contains a synthesis of the reported information on national circumstances, greenhouse gas (GHG) inventories, policies and measures, and emission projections and estimates of the total effects of policies and measures; and the present document contains a synthesis of the reported information relating to vulnerability assessment, climate change impacts and adaptation measures, financial resources, transfer of technology and capacity-building, research and systematic observation, and education, training and public awareness. An executive summary is contained in document FCCC/SBI/2007/INF.6. All references to Parties in these documents are to Annex I Parties, unless otherwise indicated.

## II. Vulnerability assessment, climate change impacts and adaptation measures

### A. Introduction

2. In their NC4, Annex I Parties provided information on their current projected and future vulnerability to climate change, as well as on possible adaptation measures by sector, following the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications" (hereinafter referred to as the UNFCCC reporting guidelines).<sup>1</sup>

3. The sectors of main concern include **coastal zones, water resources, human health and agriculture**. Parties reported that predicted sea level rises, heat-related deaths, floods, droughts, scarcity of water and a decline in crop production and other agricultural effects could affect millions of people.

4. Many Parties emphasized the **importance of further research in the areas of vulnerability assessment and adaptation options**. Examples of research projects under way include CONWOY and CLIMAITE in Denmark; DINAS-COAST (coastal areas), EURO-LIMPACS (freshwater ecosystems), and cCASHh (human health) commissioned by the European Commission; and the Climate Change Impacts and Adaptation Programme in Canada. Other Parties are already moving from research to the **implementation of concrete national adaptation plans, strategies and programmes** (table 1).

5. A number of Parties (e.g. Australia, Belgium, Denmark, European Community (EC), France, Germany, Greece, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland and United States of America) reported on their **cooperation on adaptation with developing country Parties**, including technology transfer projects. Examples are the Pacific-Japan Project, and the United States Famine Early Warning Systems Network (FEWS NET).

6. Some Parties consider **adaptation and mitigation as being complementary parallel tracks in their climate policy**. Reflecting this viewpoint is the European Commission sponsored Adaptation and Mitigation Strategies (ADAM) project, an assessment of both mitigation and adaptation policies and their costs for achieving a global mean temperature no higher than 2° C above pre-industrial levels.

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<sup>1</sup> See document FCCC/CP/1999/7.

**Table 1. Examples of national adaptation plans, strategies and programmes for adapting to climate change**

Party	Title	Year of initiation
Australia	National Biodiversity and Climate Change Action Plan	2004
	National Water Initiative	2004
	Climate Change Action Plan for the Great Barrier Reef	2004
	National Action Plan for Salinity and Water Quality	2000
Austria	Austrian protection forest strategy	2002
Belgium	PLUIES Flood Prevention Plan, Walloon Region	2003
	Sigma Plan on flooding	2005
	Federal plan on heatwaves and ozone	2005
Canada	National Climate Change Adaptation Framework	2005
	Climate Change Impacts and Adaptation Program (CCIAP)	2001–2006
Denmark	The National Forest Programme	2002
European Community	Work on adaptation is planned under the next phase of the European Climate Change Programme	2005
	European Flood Alert System (EFAS)	2003
	European Forest Fire Information System (EFFIS)	2003
Finland	National Strategy for Adaptation to Climate Change	2005
France	Climate Plan	2004
Germany	Coastal Protection Strategy, Lower Saxony	2005
Ireland	The Planning and Development Act	2000
Netherlands	National Water Policy	2000
	Coastal Policy Plan	2000
	National Programme for Adaptation, Spatial Planning and Climate (ARK)	2006
Norway	National Strategy for Adaptation to Climate Change	Planned
Poland	National Water Management Strategy	2005
	Programme on the Protection of the Coastline	2002
Portugal	Contingency plan for heatwaves (PCOC)	2004
Romania	The National Strategy on Climate Change	2005
Spain	National Plan for Adaptation to Climate Change (PNACC)	2006
Switzerland	Swiss Government National Platform for Natural Hazards PLANAT	2005
United Kingdom	The UK Climate Impacts Programme (UKCIP)	1997
United States	Climate Change Science Program	2002

## B. Impacts, vulnerability assessment and adaptation to climate change

7. The vulnerability assessment was performed by Parties based on observations and modelling. Table 2 provides an overview of some of the methods used in these assessments.

**Table 2. Examples of methods used by Parties to estimate climate change, by sector**

Sector	Method	Parties
Agriculture	DSSAT, 3/IBSNAT, CERES	Bulgaria, Estonia, Greece, Romania and Slovakia
	National models, ROIMPEL crop growth model	Bulgaria
Water resources	CLIRUN	Estonia
	National models	Estonia
	CCEP and ILMAVA	Finland
	CROPWAT	Romania
Coastal zones and marine ecosystems	Common Intergovernmental Panel on Climate Change methodology including economic analysis	Estonia
	Bruun Rule for forecasting future coastal erosion	
Terrestrial ecosystems	EU FP5 SilviStrat	Austria
	National methods	Russian Federation and Belarus
Forestry	RipFor model	Estonia
	JABOWA II GAP	Bulgaria
	GOTILWA+	Spain
Human health	Other methods (StartClim)	Austria
	A risk model for detecting encephalitis outbreaks	United States
Other sectors	Other methods	Canada, United Kingdom and New Zealand

### 1. Agriculture

8. Most Parties reported on the **likely impacts of climate change on the agriculture sector**. Some reported that **crop productivity might be reduced** (e.g. Belarus, Czech Republic, Estonia, Japan,

Lithuania, Sweden, Switzerland and Turkey). Some indicated that **insurance rates and costs** associated with animal production might increase (e.g. Netherlands).

9. Agriculture may be affected by the reduced availability of water and increased occurrence of floods (Germany, Netherlands and United States). Many Parties reported on **new requirements for buildings and improving or extending irrigation systems as well as innovative techniques for the use of water** (e.g. Austria, Bulgaria, Croatia, France, Germany, Lithuania, New Zealand, Russian Federation, Slovakia, Switzerland and Turkey).

10. Some Parties (e.g. Belgium, Croatia, New Zealand, Norway and Sweden) reported the possible **threat of disruptions in the growing seasons** due to higher temperatures, with spring crops being particularly vulnerable. Low soil temperatures due to lack of snow cover are predicted to lead to agricultural damage (Finland and Lithuania).

11. Other factors that may affect agriculture include: deficit of organic matter; loss of upper soil layers due to water and wind erosion; nutrient leaching; and higher occurrence of weeds, diseases and pests (e.g. Australia, Denmark, Germany, Lithuania, Slovenia and Switzerland). Some Parties are anticipating possible positive effects of temperatures that are more favourable to production.

12. Many Parties reported the **need for enhanced crop varieties and farm management practices, change of sowing dates and the creation of effective systems for dealing with pests and improving soil structure**. Creating **insurance for farmers** was also considered (Austria, Belarus, Germany, Russian Federation and Netherlands). The need for promotion of public awareness, training in long-term planning, and improvements in climate change assessment and an integrated strategy for preventive adaptation was also noted (Slovenia).

## 2. Water resources

13. Most Parties noted the likely effects of climate change on the quantity and quality of water supplies. Some Parties noted **drying trends in lakes and decreases in stream flow** (e.g. Australia and Hungary). In addition, Parties noted that they may experience **decreases in surface and underground outflow**. Conversely, in winter and spring there might be **increased occurrence of flooding due to heavy rains** (e.g. Belgium, France, Germany, Netherlands, Russian Federation and Sweden). Almost all Parties noted that **water quality may deteriorate** as a result of climate change and there may be a risk of freshwater contamination.

14. Some Parties have adopted or already implemented national water initiatives or regulatory reforms (e.g. Australia, Austria, Belgium, Czech Republic, Finland, Germany, Russian Federation and United States). This includes a number of **complex approaches to enhance the effectiveness of water supply and usage**, such as installing rainwater harvesting facilities in buildings, implementing methods to economize water usage, building adequate water storage facilities and introducing the technical assessment of water infrastructures.

15. **Improvements in flood forecasting** are being implemented or considered by a number of Parties. Other adaptation options are the creation of networks of water utility companies and the establishment of a compensation system for flooding incidents (Finland).

## 3. Terrestrial ecosystems and forest-related processes and practices

16. Parties noted the possible adverse effects of climate change on terrestrial ecosystems including forests and rangeland. There could be **shifting of climate zones to the north and to higher latitudes, thereby shrinking habitats and ecosystems** as growing zones shift to where less land is available. There is a **heightened risk of forest fires** that may threaten the survival of some ecosystems (Croatia, Denmark, France, Hungary, Poland, Russian Federation, Slovenia, Spain and United States).

17. All Parties highlighted the need for **planning improvements in the management and protection of forests**. Promoting forest management by changing species composition (Belgium) and promoting awareness of climate change among individual forest owners (Czech Republic) were also mentioned.

#### 4. Coastal zones

18. Coastal zones are very important for a number of economic activities including tourism and infrastructure development. Climate change increases the risks of **saltwater intrusion into freshwater reserves and of increased storm damage to coastal infrastructures** (Belgium, EC, Croatia, Estonia, France, Lithuania, Netherlands, Turkey and United States). Low-lying areas, that are exposed to the effects of both sea level rise and increased river runoff, are expected to experience increased pressure. **Substantial changes in coastal and island contours may take place and trigger migration and vertical accretion of wetlands.**

19. In a number of Parties agencies are developing data that can provide insights into the implications of sea level rise (e.g. Belgium, France, Netherlands, Poland and United States). Several Parties are already **repairing the areas affected by erosion** by transporting sand to these areas. **Building or reinforcing dykes** is also important and may need to be continued. Several Parties are now **updating safety standards** to reflect climate change risks, improving coastal flood protection systems and prohibiting construction in some coastal zones.

#### 5. Human health

20. Most Parties noted that **vector-, food- and water-borne diseases such as malaria, dengue fever and diarrhoea could spread**. The **likely increase of cardiovascular and respiratory problems** due to hyperthermal stress was referred to by a number of Parties (e.g. Austria, Belarus, Portugal and United States). There could also be **increased concentrations of air-borne pollen, causing greater frequency and severity of allergies, asthma and hay fever**. Some Parties may experience a reduction of cold-related problems.

21. Some Parties are already **improving the public health responses to heatwaves**. A number of Parties (e.g. Belgium, Germany, France, Hungary and Sweden) noted the cooperation between health care and climate experts on providing information on heatwaves and disease risk, securing energy supply, ventilating retirement homes and improving urban planning. Germany, Sweden and the United States indicated that there is a need to provide relevant vaccination and health education for climate-related diseases.

#### 6. Biodiversity

22. Parties reported on the uncertainty regarding the response of ecosystems to the impacts of climate change. Yet they made it clear that **coral reefs, alpine regions, wetlands and wet tropics are particularly vulnerable**. They also noted the possibility of the spreading of weeds, pests and diseases (Australia and Sweden). Species that may not be able to migrate are threatened and could become extinct because of poor adaptability. Parties mentioned a number of other threats, including the deaths of birds due to the spread of diseases, increased fires, sea level rise and the disruption of seasonal cycles.

23. All the Parties reported that future biodiversity is uncertain owing to climate change, and various adaptation measures have been suggested. The European Green Belt was cited as a good example of an international initiative to link habitats. Many Parties highlighted the need to take **measures to control parasites, disease and the invasion of new species**. Some Parties suggested introducing effective conservation measures to reduce human ecological footprints, and to preserve animal species through zoos and tree species through planting (e.g. Croatia, Germany and Lithuania).

## 7. Other sectors

24. Several Parties noted the **possible adverse effects of climate change on fisheries**. Some Parties mentioned that **traditional tourist resorts might become less attractive**, resulting in economic losses for many communities that depend on the tourism sector. Many Parties stressed that climate change could lead to changes in the demand for energy with regard to amounts and timing. **Extreme events could disrupt the operations of the construction industry**, resulting in damage to roads, rails, bridges and dam installations. For a number of Parties (Australia, Austria, EC, Finland, Norway, Spain, Sweden and Switzerland), the increased risk conditions could lead the insurance industry to introduce restricted insurance coverage and increased costs.

25. **Changing building standards to respond to climate change** was also reported (e.g. Australia, Finland, France, Iceland, Netherlands, Norway, Sweden and United States). Some Parties indicated that they are diversifying the tourism sector and are taking advantage of extended seasons. **Early warning systems have been developed** or are being developed to ensure secure telecommunications and transport networks in extreme weather events.

## III. Financial resources, transfer of technologies and capacity-building

### A. Introduction

26. The UNFCCC reporting guidelines request Parties included in Annex II to the Convention (Annex II Parties) to provide details of measures taken to implement their commitments under Article 4, paragraphs 3, 4 and 5, of the Convention. This includes financial contributions to the Global Environment Facility (GEF) and other multilateral institutions, as well as bilateral and regional financial contributions. The guidelines also request Parties to report information on steps taken by governments to promote the transfer of environmentally sound technologies and to support the development and enhancement of endogenous capacities and technologies of developing countries.

#### 1. Overview of results

27. The trends in financial resources allocated to climate change by reporting Parties between the 1998–2000 period (reported in NC3) and the 2001–2003 period (reported in NC4) and the trends in facilitation of technology transfer and capacity-building are summarized in this section of the report. As there are data gaps and inconsistencies in reporting approaches among Parties and across periods, the following trends should be interpreted with caution:

- (a) The majority of Parties have reported **an increase in their contributions to multilateral institutions, including to the GEF** in the 2001–2003 period in relation to the 1998–2000 period;
- (b) **An increase in total bilateral contributions to mitigation-related activities** occurred between the 1998–2000 period and the 2001–2003 period. Continuing past trends, the **energy and transport sectors received the largest share of total bilateral assistance** for mitigation in the 2001–2003 period; moreover, the contributions to these sectors increased sharply;
- (c) **Total bilateral contributions for adaptation-related activities** between the 1998–2000 period and the 2001–2003 period remained broadly stable. Adaptation-related activities continue to attract only **a small fraction** of Parties' contributions to climate change related activities and programmes. In 2003, contributions were up in absolute terms from 2000, but the share of resources allocated to adaptation compared with those allocated to mitigation was at its lowest levels since 1998;

- (d) **The majority of the activities relating to technology transfer have taken place in the energy sector**, in particular in the area of energy efficiency and renewable energy. **The role of bilateral and multilateral partnerships and of partnerships with key stakeholders** in fostering cooperation on technology transfer between developed and developing countries has been enhanced significantly;
- (e) Parties, recognizing that **capacity-building in developing countries is a key enabling mechanism for effective implementation of the Convention**, continued to support capacity-building as an integral part of all their support programmes. The emerging strategic approach to development cooperation includes support for capacity-building in the area of climate change.

## 2. Main reporting issues

28. The majority of Annex II Parties have completed, at least partially, the tables requested in the UNFCCC reporting guidelines containing information on financial contributions to the GEF, assistance provided to developing countries that are particularly vulnerable to climate change, and financial resources relating to the implementation of the Convention provided through bilateral, regional and multilateral channels. Data were provided for the 2001–2003 period, and in some cases for 2004. However, some Parties did not use the categories provided in these tables and Parties reported on financial contributions using different years. This makes the analysis of trends difficult and the results should be interpreted cautiously. In summary:

- (a) All Annex II Parties provided information on their contributions to the GEF. Fourteen Parties reported their contributions for each year between 2001 and 2003. Some others (Belgium, Canada and France) provided contributions over a certain period rather than an annual contribution. Ireland reported contributions for 2003 only; the United Kingdom reported for 2003 and 2004 only; and Finland did not report data for 2001;
- (b) The majority of Parties also reported on their contributions to multilateral institutions and programmes for the 2001–2003 period.<sup>2</sup> Most Parties reported data on their contributions to multilateral institutions without distinguishing between funding which is related to climate change and that which is not. Some Parties acknowledged difficulties in identifying the portion of their contributions made to multilateral organizations targeting the implementation of the Convention and related activities and only a few of them provided explicit details on such shares;
- (c) Nearly all Annex II Parties provided extensive and detailed information on bilateral and regional financial contributions for mitigation and adaptation by subsectors using textual and/or tabular formats. However, the tables were provided in different formats and were difficult to compare with one another. In addition, some Parties stated that figures presented in the NC4 included financial contributions that may not be strictly climate change related. The level of detail provided varies greatly across NC4, making comparison and aggregation difficult;
- (d) Just over half of the Parties reported information on how they have encouraged private-sector activities and public–private partnerships, including examples of initiatives to stimulate private-sector participation in climate change action;

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<sup>2</sup> Belgium, Iceland, Ireland and the United Kingdom reported contributions by institution but did not provide data for each year between 2001 and 2003. France reported a total amount for 2004 and Germany provided the total contributions to all multilateral institutions for each year.



- (e) All Annex II Parties provided information on practicable steps to promote, facilitate and finance the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties. They also provided examples of technology transfer programmes and projects. In providing this information almost all of them followed the UNFCCC reporting guidelines. Sixteen Parties (Australia, Austria, Belgium, Canada, Denmark, EC, Finland, Germany, Ireland, Japan, Netherlands, Norway, Portugal, Sweden, Switzerland and United Kingdom) included a separate section on transfer of technology in their NC4, and the other Parties reported relevant information in their descriptions of multilateral and bilateral cooperation;
- (f) All Annex II Parties highlighted activities relevant to supporting the development and enhancement of endogenous capacities of developing countries. Eleven of them included a separate section on capacity-building in their NC4 and other Parties reported capacity-building in their bilateral projects, or by completing the relevant table with respect to adaptation. This underscores the cross-cutting nature of capacity-building.

### B. Multilateral and bilateral funding

29. Seven Annex II Parties reported their “**new and additional**” contributions as their **contributions to the GEF** for the reporting period. Two Parties linked their “new and additional” contributions to the pledges made in the Bonn Agreements on the implementation of the Buenos Aires Plan of Action<sup>3</sup> and discussed multilateral and bilateral initiatives as well as contributions to the Special Climate Change Fund. In addition, two Parties reported their “new and additional” contributions separately from other contributions without stating why they were considered as “new and additional”, and one country reported all its contributions as “new and additional”. Nine Parties did not refer explicitly to “new and additional” resources in their NC4.

30. A workshop on the preparation of the NC4 of Annex I Parties was organized by the UNFCCC secretariat and held in Dublin, Ireland, from 30 September to 1 October 2004. Reporting on “new and additional” sources of financing was considered challenging given the question of definition and criteria for identifying these resources. One of the conclusions of the workshop was that the use of the results from the test phase of applying “Rio markers” by the Organisation for Economic Co-operation and Development and the Development Assistance Committee (OECD/DAC) is a possible approach to improve reporting on this issue.<sup>4</sup> The **use of the “Rio markers”** could also have helped in identifying more specifically what kind of activities to address climate change are being supported by Annex II Parties. However, only a limited number of Annex II Parties have used the “Rio markers” for reporting data in their NC4 (e.g. Austria, Belgium, Japan and Netherlands).

31. The information on funding in this document comes from data reported data by the Parties. The information could be considered in conjunction with the recent analysis provided by the UNFCCC secretariat in the background paper prepared in August 2007.<sup>5</sup> The paper demonstrates that while the investments provided through Official Development Assistance (ODA) were only 0.23 per cent of global investment in 2000, **the ODA plays an important role in countries with little capacity to leverage domestic and international private investments** (ODA share was over 2 per cent in Africa and over 6 per cent in the least developed countries) and for technologies or projects where risks are still high for private-sector investments. For example, in sectors such as health, coastal zones and water supply, most

<sup>3</sup> See statement by Belgium on behalf of the European Community and its member States, and also on behalf of Canada, Iceland, New Zealand, Norway and Switzerland in FCCC/CP/2001/MISC.4.

<sup>4</sup> The “Rio markers” developed by the OECD/DAC allows the identification of specific activities targeting the objectives of the Rio Conventions, which, to a large extent, fall under the definition of aid to the environment.

<sup>5</sup> Background paper on analysis of existing and planned investment and financial flows relevant to the development of effective and appropriate international response to climate change  
<[http://unfccc.int/cooperation\\_and\\_support/financial\\_mechanism/items/4053.php](http://unfccc.int/cooperation_and_support/financial_mechanism/items/4053.php)>.

of the financial flows needed for adaptation cannot consist of simple shifts of existing investment flows and will need to rely on additional sources of financing. The paper shows that financial flows for policy development and implementation are important and calls for the scaling up of international bilateral and multilateral sources of funding.

32. In order to facilitate the analysis of trends in financial resources relating to the implementation of the Convention, figures presented in the compilation and synthesis report of NC3 for the 1998–2000 period are shown in this document together with the figures for the 2001–2003 period, which are reported in NC4. Figures that were not reported in United States dollars were converted at the exchange rate for the year in which the contribution was reported.<sup>6</sup>

### 1. Multilateral funding

33. All Annex II Parties reported in their NC4 information on their contributions to the GEF either for a multi-year period or for each or some of the years between 1999 and 2006 (see table 3). The information in table 3 is presented as reported by Parties in their NC4 and might not be directly comparable with information reported by the GEF because of different reporting systems.

34. Information provided by Annex II Parties in NC3 and NC4 makes it possible to analyse the trends in their contributions to the GEF over time for most Parties. Among the 13 Parties that provided a comprehensive set of figures covering the 1997–2004 period,<sup>7</sup> 10 reported **an increase in their contributions to the GEF** in the 2001–2004 period in relation to the 1997–2000 period.<sup>8</sup> The remaining Parties (Greece, Norway and Japan) reported a slight decrease in their total contributions between those two periods. Although Denmark and Sweden did not report a complete set of data, the data that were reported by these Parties suggest an increase in the contributions over their respective reporting periods.

35. Details of the contributions from Annex II Parties to each multilateral institution other than the GEF can be found in table 4. The UNFCCC reporting guidelines require Annex II Parties to report their contributions to the World Bank, International Finance Corporation, African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, United Nations Development Programme, United Nations Environment Programme, UNFCCC and other multilateral institutions.<sup>9</sup> In addition, Parties are required to report on their contributions to multilateral scientific, technological and training programmes. However, less than half of the Parties reported on this item separately and thus figures provided by them on this item were included in the category “Others”.

36. Many Parties reported on overall contributions to multilateral institutions and did not specify the share attributed to climate change related projects and programmes. This greatly hampers the assessment of trends in multilateral funding provided to address climate change. Some Parties (e.g. Belgium and United Kingdom) explicitly reported on the share of contributions to multilateral institutions attributed to climate change activities and programmes. For these Parties, the actual contributions to multilateral institutions allocated to climate change have been increasing.

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<sup>6</sup> International Energy Agency. 2006. *Energy Prices and Taxes*: 4th Quarter 2006. Organisation for Economic Co-operation and Development Publishing.

<sup>7</sup> There are insufficient data from Denmark, France, Ireland, Portugal, Spain, Sweden and the United Kingdom to assess change in their contributions to the GEF between the 1997–2000 and 2001–2004 periods.

<sup>8</sup> To assess the change between the two periods, total contributions for each period are compared, but not the variations within each period.

<sup>9</sup> All but two Parties reported on their contributions to each multilateral institution. Germany and France reported their contributions to multilateral institutions at the aggregated level.

**Table 3. Financial contributions made by Annex II Parties to the Global Environment Facility, 1997–2006** (millions of United States dollars)

Party	As reported in the third national communication				As reported in the fourth national communication					
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Australia <sup>a</sup>	2.9	5.9	3.0	3.4	5.2	5.0	6.0	15.3		
Austria	4.1	2.2	2.0	1.9	4.8	5.1	8.1	9.1		
Belgium		(1995–1998) 30.7			(1999–2002) 29				(2003–2006) 41.8	
Canada <sup>b</sup>		(1994–1998) 78.8			(1998–2002) 79.7				(2003–2006) 26.0	
Denmark				7.2 <sup>c</sup>	5.8	8.3	9.9	10.9		
Finland <sup>d</sup>	7.6	3.6	5.4	1.7		3.20	8.36	9.94		
France		(1995–1998) 143.0		(1999–2000) 144.0				(2003–2005) 49.0		
Germany <sup>e</sup>	53.3	48.8	42.2	45.9	44.5	69.2	83.0	91.2	91.2	
Greece	1.3	1.3	1.3	1.1	1.0	0.0	2.7	0.5	1.8	1.8
Ireland							1.6	1.3	3.0	
Japan	36.9	143.5	174.0	112.2	99.6	0.0	209.7	111.9		
Netherlands	8.3	8.2	8.6	8.4	12.0	13.6	30.5	23.6		
Norway	6.6	7.8	7.8	7.8	6.4	7.2	8.1	–		
New Zealand	0.7	0.7	0.5	0.9	0.7	1.0	1.8	2.7		
Portugal					1.1	0.0	3.2	1.8		
Spain	14.6			12.8	1.5	1.5	2.0	11.2		
Sweden <sup>f</sup>				1.5	3.8	5.4	16.9			
Switzerland	7.4	7.5	5.0	6.4	9.6	15.9	18.4	19.9		
United Kingdom	15.3	17.3	15.8				(2003–2004) 54.0			
United States	35	47.5	167.5	35.8	107.8	100.5	146.9	138.4	106.64	79.2

<sup>a</sup> The Australian financial year is from 1 July to 30 June.

<sup>b</sup> Canada reported total contributions to the GEF for each replenishment.

<sup>c</sup> The 2000 figure for Denmark was reported in its NC4.

<sup>d</sup> Finland did not report its contribution to the GEF for 2001 in its NC4.

<sup>e</sup> The 2000 figure for Germany was reported in its NC4.

<sup>f</sup> Sweden reported a USD 53.1 million contribution between 1998 and 2001 in its NC3.

**Table 4. Financial contributions made by Annex II Parties to multilateral institutions, 1998–2003** (millions of United States dollars)

Institutions	As reported in the third national communication				As reported in the fourth national communication			
	1998	1999	2000	Total	2001	2002	2003	Total
World Bank	2 284.2	2 087.6	1 665.7	<b>6 037.5</b>	1 283.6	1 311.8	1 289.0	<b>3 884.5</b>
International Finance Corporation	44.0	40.4	276.4	<b>360.8</b>	247.3	172.4	314.2	<b>733.9</b>
African Development Bank	346.4	383.0	383.7	<b>1 113.1</b>	211.6	242.9	272.9	<b>727.4</b>
Asian Development Bank	436.1	657.4	318.9	<b>1 412.4</b>	279.8	426.7	318.7	<b>1 025.2</b>
European Bank for Reconstruction and Development	102.0	129.5	95.3	<b>326.8</b>	84.4	87.2	77.1	<b>248.7</b>
Inter-American Development Bank	126.5	123.9	122.7	<b>373.1</b>	77.7	52.2	77.8	<b>207.7</b>
United Nations Development Programme	468.3	453.1	515.3	<b>1 436.7</b>	441.7	475.7	746.4	<b>1 663.9</b>
United Nations Environment Programme	35.9	36.7	32.9	<b>105.6</b>	26.7	39.4	42.3	<b>108.4</b>
UNFCCC	6.6	6.6	7.3	<b>20.5</b>	1.5	6.2	6.1	<b>13.8</b>
Others	529.9	2 783.1	2 984.5	<b>6 297.6</b>	3 355.0	3 221.4	4 435.9	<b>1 1012.3</b>
<b>Total</b>	<b>4 379.9</b>	<b>6 701.4</b>	<b>6 402.7</b>	<b>17 484.0</b>	<b>6 009.4</b>	<b>6 036.0</b>	<b>7 580.3</b>	<b>19 625.7</b>

*Note:* The change between the figures reported by Austria in the NC3 and NC4 is so great that the figures are highly unlikely to be consistent and have therefore been excluded from the table. See table 6 in the annex to this document for details on annual contributions by each Party.

37. Among the 12 Parties that provided a relatively complete set of data on their contributions to multilateral institutions covering the 1998–2003 period,<sup>10</sup> eight reported **an increase in their total contributions to multilateral institutions** in this period. Four Parties reported a decline in their total contributions. Table 4 shows the overall trends in reporting Parties' contributions to each multilateral institution. The decrease in contributions to six of the nine institutions is offset by the increase in contributions to the other institutions. Table 6 of the annex contains a complete data set on the financial contributions by Party to each multilateral institution.

## 2. Bilateral funding

38. All Annex II Parties provided information on their bilateral financial contributions relating to the implementation of the Convention. Although several Parties have reported bilateral financial contributions according to the categories proposed in the UNFCCC reporting guidelines, a number of them have used different tables and sectors from those specified in the guidelines. For example, France used a different table for reporting the contribution for mitigation projects; the EC did not provide the contribution for a number of projects reported in the NC4; and the Netherlands used different reporting categories.

39. Table 5 presents a summary of total annual bilateral contributions by sector as reported by Annex II Parties in their NC3 and NC4. However, since many Parties have reported contributions for different years, the figures presented in this table have limited value for trend analysis. For instance, in its NC4, the United States reported its contribution to mitigation and adaptation for 2001 only. The inclusion of its contribution for 2001, but not for 2002 and 2003, makes the overall total contributions for 2001 look disproportionately high in relation to 2002 and 2003. The noticeable decrease in contributions for adaptation between the 1998–2000 period and the 2001–2003 period as shown in table 5 could be mainly attributed to the reporting by the United States and Japan. In particular, for the 1998–2000 period, the United States included direct funding relating to commercial sales in its contribution for adaptation and capacity-building amounting to USD 3.6 billion. Japan did not report annual contributions by sector for adaptation in its NC4, but noted that overall contributions for adaptation measures from 1997 to 2003, including measures against natural disasters, amounted to approximately USD 1,509 million, which is about equivalent to the contribution Japan reported for the 1997–1999 period in its NC3; the amount contributed for the 2001–2003 period remains unclear. As shown in figure 1 (which does not include the contribution from the United States and Japan), total bilateral support for adaptation for the period 1998–2003 remained broadly stable.

40. Complete data sets by Party and by sector on the bilateral financial contributions as reported in the NC3 and NC4 are provided in tables 7 to 15 of the annex. In addition to the data provided in these tables, several Parties provided a description of the bilateral activities and programmes they support in the areas of mitigation and adaptation.

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<sup>10</sup> There are insufficient data from Belgium, Denmark, France, Germany, Iceland, Ireland, Portugal and the United Kingdom to assess changes in their contributions to the multilateral institutions between the 1998–2000 period and the 2001–2003 period. The EC data cannot be compared between the two periods because contributions to different multilateral institutions have been reported over different periods. The change between the figures reported by Austria is so great that the figures are highly unlikely to be consistent and have thus been excluded from the analysis. See tables 7 to 15 in the annex for details on annual contributions by each Party.

**Table 5. Bilateral financial contributions by sector, 1997–2003** (millions of United States dollars)

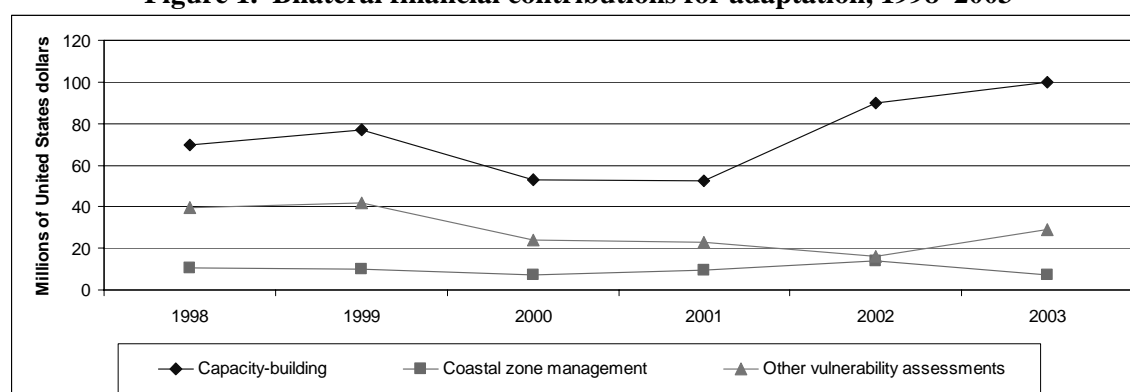
	As reported in the third national communication				As reported in the fourth national communication				
	1998	1999	2000	Total 1998–2000	2001	2002	2003	Total 2001–2003	
Mitigation	Energy	2 323.6	1 888.6	1 590.5	<b>5 802.7</b>	14 666.7	1 041.2	2 125.0	<b>17 832.8</b>
	Transport	1 699.3	703.1	855.4	<b>2 215.9</b>	39296.2	378.0	1 501.9	<b>41 176.1</b>
	Forestry	437.5	309.3	311.1	<b>1 057.9</b>	361.3	305.6	562.0	<b>1 228.9</b>
	Agriculture	563.4	179.9	56.1	<b>799.4</b>	7 458.1	22.1	31.9	<b>7 512.1</b>
	Waste	143.7	72.7	7.0	<b>223.4</b>	56.9	31.5	46.4	<b>134.8</b>
	Industry	499.8	395.3	55.0	<b>950.1</b>	71 798.2	30.2	57.2	<b>71 885.6</b>
	<b>Total</b>	<b>5 667.4</b>	<b>3 548.9</b>	<b>2 875.2</b>	<b>12 091.4</b>	<b>133 637.5</b>	<b>1 808.5</b>	<b>4 324.4</b>	<b>139 770.4</b>
Adaptation	Capacity-building	873.1	2 608.3	996.4	<b>4 477.7</b>	52.4	90.0	99.7	<b>242.1</b>
	Coastal zone management	171.4	513.0	29.2	<b>713.7</b>	9.5	14.2	7.5	<b>31.2</b>
	Other vulnerability assessment	122.5	86.9	27.4	<b>236.8</b>	23.4	16.2	29.2	<b>71.3</b>
	<b>Total</b>	<b>1 167.0</b>	<b>3 208.2</b>	<b>1 053.1</b>	<b>5 428.2</b>	<b>85.3</b>	<b>120.4</b>	<b>136.4</b>	<b>344.6</b>
<b>Grand total</b>	<b>6 834.3</b>	<b>6 757.1</b>	<b>3 928.2</b>	<b>17 519.7</b>	<b>133 722.8</b>	<b>1 928.9</b>	<b>4 460.8</b>	<b>140 115.0</b>	

Note: In addition to data reported by Parties under “Other vulnerability assessment”, the row for this category includes data provided by some Parties, such as Belgium, the Netherlands and Switzerland, in categories that are different from those specified in the UNFCCC reporting guidelines.

### 3. Funding for adaptation and mitigation

41. The trend in bilateral financial contributions for adaptation and for mitigation is illustrated in figures 1 and 2, respectively. However, methods for reporting on financial contributions for adaptation and mitigation in the NC4 varied greatly among reporting Parties and the results presented in the figure should be interpreted with caution. To enable an analysis of trends, the contribution of the United States for adaptation and mitigation and the contribution of Japan for adaptation have not been included in figures 1, 2 and 3 (for details see para. 39).

42. Figure 1 illustrates that **bilateral contributions for adaptation have over the years primarily been allocated to capacity-building activities, followed by other vulnerability assessments and coastal zone management**. Overall, seven Parties reported an increase and eight reported a decrease in their contributions to capacity-building between the 1998–2000 period and the 2001–2003 period; five reported an increase in contributions to coastal zone management and six a decrease; and six reported an increase in contributions to other vulnerability assessment and eight a decrease.

**Figure 1. Bilateral financial contributions for adaptation, 1998–2003**

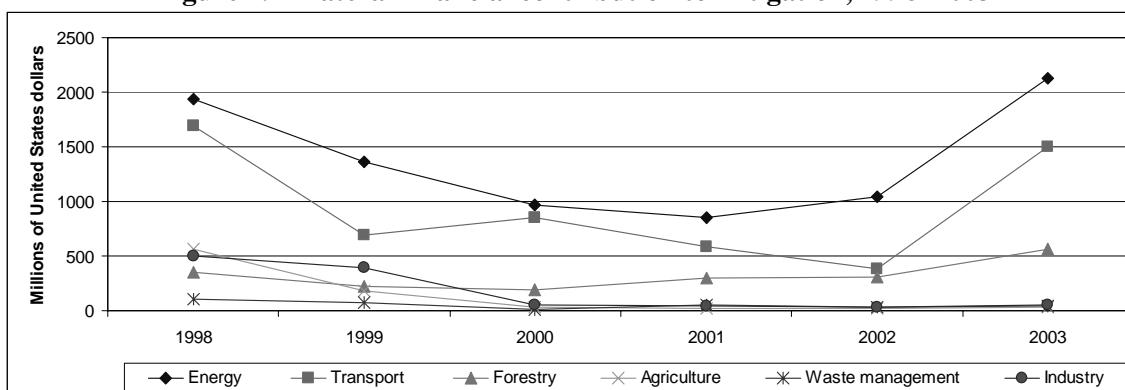
Note: To allow for an analysis of trends in bilateral financial contributions by sector, contributions from Japan and the United States for adaptation have been excluded from the figure as explained in paragraph 39 of this document.

43. **Total contributions to mitigation increased** between the 1998–2000 period and the 2001–2003 period (see table 5 and figure 2). The data reported suggest that, continuing the past trend, the **energy and transport sectors received the largest share of total bilateral assistance relating to mitigation**. The same holds true for assistance to the industry sector, but only for 2001 (contributions for this year as

shown in figure 2 exclude the contribution from the United States). Contributions to energy and transport sectors increased sharply between 2001 and 2003. Since 2000, the contributions to forestry have exceeded the contributions to agriculture and industry.

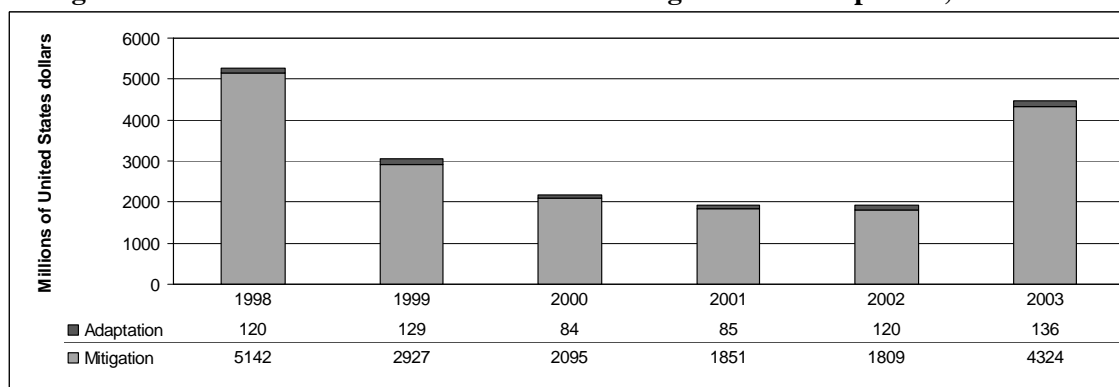
44. Figure 3 shows that **contributions for adaptation continue to form a small fraction of Parties' contributions to climate change related activities and programmes**. In addition, although contributions for adaptation have been up since 2000 in absolute terms, the fraction of resources allocated for adaptation in 2003 was, at 3.2 per cent, at its lowest levels since 1998.

**Figure 2. Bilateral financial contribution to mitigation, 1998–2003**



Note: To allow for an analysis of trends in bilateral financial contributions by sector, contributions from the United States to mitigation has been excluded from the table as explained in paragraph 39 of this document.

**Figure 3. Bilateral financial contributions to mitigation and adaptation, 1998–2003**



Note: To allow for an analysis of trends in bilateral financial contributions by sector, contributions from the United States for adaptation and mitigation and the contribution from Japan for adaptation have been excluded from the table as explained in paragraph 39 of this document.

### C. Transfer of technology

#### 1. Overview of technology transfer issues

45. Eleven Parties provided examples of technology transfer programmes and projects in tabular format (Australia, Austria, Denmark, EC, Finland, France, Germany, Japan, Netherlands, New Zealand and Switzerland) and the other Parties provided this information in textual format. The majority of these programmes and projects were in the **energy sector, particularly in the areas of energy efficiency improvement and utilization of renewable energy sources**.

46. **Partnerships between key stakeholders are increasingly being seen by many Parties as a means to enhance the transfer of technologies**. This trend was emphasized by 14 Parties (Australia, Austria, Canada, Denmark, EC, Finland, Germany, Ireland, Japan, Netherlands, Norway, Sweden, Switzerland and United Kingdom).

47. Some of the **multilateral partnerships** reported by Parties, such as the Renewable Energy and Energy Efficiency Partnership, aim at increasing the deployment of technologies through capacity-building, removing barriers and using innovative financial instruments. Other multilateral partnerships try to foster international cooperation in the accelerated development and diffusion of technologies and practices through multilateral initiatives such as the Climate Technology Initiative.

48. **Bilateral partnerships** reported by Parties, such as that of the Energy and Environment Partnership of Finland with Central America, focus on technology development and deployment at the regional level. Such initiatives also exist at the sectoral level (e.g. the Energy Research Programme initiated by Denmark) and at the municipal level (such as through the twin-town schemes reported by Sweden). Other partnerships have a clear focus on specific technologies: the partnership between the European Union (EU) and China on climate change includes research, development and demonstration of near-zero emissions coal technology through carbon capture and storage and the deployment and diffusion of key energy technologies.

49. Three Parties made explicit reference to **hard and soft technologies** as requested by the guidelines (Australia, Denmark and Netherlands). However, most Parties implicitly referred to such technologies, as they provided information on activities relating to soft technologies, such as capacity-building, information networks and training, and on activities relating to hard technologies.

50. There is an **increased interest in technology transfer activities relating to adapting to the adverse effects of climate change** in developing countries. Almost all Parties referred to bilateral projects and programmes intended to assist developing countries to adapt to the adverse effects of climate change. Most of these projects and programmes focus on soft technology activities in general and capacity-building in particular.

## 2. The role of the private sector in enhancing the transfer of technologies

51. Many Parties highlighted the **prominent role of the private sector in enhancing the transfer of technologies to developing countries**. Fifteen Parties (Australia, Canada, EC, Finland, Denmark, France, Germany, Iceland, Ireland, Japan, Netherlands, New Zealand, Sweden, Switzerland and United Kingdom) provided information on policies and programmes aimed at providing **market incentives to involve the private sector** in projects and programmes relating to the transfer of technologies to developing countries. Seven Parties (Denmark, Iceland, Ireland, Japan, Netherlands, Sweden and Switzerland) included a separate section on the role of the private sector in the transfer of technologies in their NC4, and most of the other Parties reported relevant information on the role of the private sector in their description of activities relating to the transfer of technologies.

52. Some Parties reported relevant policies and programmes that include partnerships with private-sector parties and enterprises (such as the Technology Partnership in the United Kingdom and the Renewable Energy Promotion in International Cooperation in Switzerland), programmes to stimulate the private sector to participate in technology transfer projects (Programme for Cooperation with Emerging Markets and the Development-related Export Transactions Programme in the Netherlands) and direct financial incentives such as export credits (Swedish Export Credits Guarantee Board).

53. Among the initiatives reported by the Parties in facilitating private-sector participation in the transfer of environmentally sound technologies, the following main categories can be identified:

- (a) Public-private partnerships;
- (b) Financial incentives for projects and programmes: grants, soft loans, export credit guarantees, equity investments and venture capital;
- (c) Financing and business development services provided in developing countries;

- (d) Networking and matchmaking between enterprises in industrialized countries and enterprises in developing countries;
- (e) Support to investment promotion activities: market studies, feasibility studies, job-related training and temporary management;
- (f) Promotion of technology transfer to developing countries: clean energy information systems and trade missions;
- (g) Assistance to governments in developing countries in creating enabling environments to ensure that the private sector can operate in a regulated market.

### 3. Capacity-building in the context of technology transfer

54. For many Parties capacity-building in the area of technology transfer forms an integral part of climate change policies and programmes. This was highlighted by Austria and Switzerland in the context of their **activities to set up Cleaner Production Centres** in developing countries. These centres aim at offering private companies and the public sector a wide range of services including general information, in-plant assessments, workshops, demonstration projects, capacity-building and support for the preparation of bankable projects. Germany reported on the development and enhancement of **endogenous capacities and technologies** through the German Appropriate Technology Exchange, which aims at strengthening the technological competence of industry, non-governmental organizations (NGOs) and other groups, and to promote technologies that make best use of existing resources and respond to the ecological and socio-economic requirements of partner countries. The fields of activity which received most of the support in the context of technology transfer are broadly the same as the areas summarized in paragraph 57 below.

#### D. Capacity-building

55. Eleven Parties included a separate section on capacity-building in their NC4 (Australia, Austria, Belgium, Canada, Germany, Japan, Netherlands, Norway, Portugal, Sweden and Switzerland). The Netherlands also made a distinction between its support to capacity-building activities for mitigation and its support to those for adaptation. Other Parties reported capacity-building activities among their multilateral and bilateral projects in the financial resources and transfer of technology section, the research and systematic observation section, and the education, training and public awareness section. Most Parties noted that **capacity-building constitutes an integral and key part of all their support programmes for developing countries**.

56. Parties generally recognized **capacity-building in developing countries as key to enabling them to effectively implement the Convention and Kyoto Protocol**. Many emphasized the increased attention and priority given to cooperation and to the provision of technical and financial support for capacity-building in recent years. A few Parties made references to a **strategic approach to development cooperation, including support for capacity-building in the area of climate change**. While reported activities are in line with priority areas identified in capacity-building frameworks, Parties did not make direct references to the frameworks.

57. The fields of activity which received most of the support in the context of implementation of the Convention and the Kyoto Protocol are:

- (a) **Human and institutional development:** exchange of information on methodological aspects and strengthening of administrative capacity, particularly with regard to the preparation of national adaptation programmes of action (NAPAs), GHG inventories, projects to be submitted to the GEF, clean development mechanism (CDM) projects, and strengthening the capacity of the host countries to participate in the carbon market;



- (b) **Environmental management and policy development:** implementation of new legislation and systems for environmental inspection and statistics; preparation and implementation of national environmental strategies and plans; and mainstreaming climate change into national strategies;
- (c) **Training and education:** energy planning; promotion of energy efficiency, renewable energy and sustainable agriculture and forest management; climate change risk management; environmental administration; planning and land use; and hydrological and meteorological services;
- (d) **Adaptation to climate change:** disaster prevention; water resources management; forest resources management; river management and national land development;
- (e) **Research and scientific technological cooperation:** climate change monitoring and response programmes;
- (f) **Knowledge sharing:** support for participation of representatives from Parties not included in Annex I to the Convention in conferences, meetings and workshops.

## IV. Research and systematic observation

### A. Introduction

58. All Parties provided information on research and systematic observation in their NC4, although a few Parties did not include a separate section on systematic observation. Adherence to the UNFCCC reporting guidelines and the level of detail varied considerably, depending on national priorities and the extensiveness of research and observation activities in the country. In most cases information on research was organized according to national priorities and projects or programmes, while, as in previous national communications, information on systematic observation was structured more closely in line with the guidelines. The required tabular information on systematic observation was, however, not provided by some Parties. Seven Parties provided a detailed national report on the Global Climate Observing System (GCOS), either as a separate document or as an annex to the NC4 (Denmark, Germany, Greece, Netherlands, New Zealand, Russian Federation and Spain).

59. **Parties described the main institutional responsibilities relating to research and observations, including the legal basis, governance, coordination, general research policy and budgeting structures,** and often also provided quantitative information on funding and investments. The main responsibility for coordinating research frequently lies in ministries, research institutes, academies of science or national research councils, while research is mainly carried out at universities, research institutes or specialized centres or agencies. Some Parties have developed national research programmes or plans that are specifically concerned with climate change, while in others research on climate change is covered within broader environmental protection research or meteorological programmes or coupled with air pollution activities. In most countries, national meteorological services or institutes have the main responsibility for running observation networks and data collection. Funding for research and observations is generally provided from the state/public budget, through international or bilateral cooperation, including funds provided by the EC, and by the private sector.

60. **Research is often carried out as part of international cooperation or programmes.** Many Parties participated actively in the work of the Intergovernmental Panel on Climate Change (IPCC) and have made substantive contributions to its Fourth Assessment Report. A large number of Parties also highlighted their participation in relevant scientific programmes, in particular the World Climate Research Programme, the International Geosphere-Biosphere Programme and the International Human Dimensions Programme on Global Environment Change. Most Parties participated in a large number of other international climate change programmes and projects coordinated by international organizations

on thematic issues or with a regional focus, and reported on international cooperation on networks for systematic observation and associated data exchange in the framework of the GCOS and the World Meteorological Organization (WMO).

61. **Participation in, and support to, regional and joint research and observations initiatives with neighbouring countries received considerable attention** from many Parties. This was particularly the case for many European countries that contribute to, or receive support within, the EU Framework Programmes. In the Asia-Pacific region cooperative research and observation activities are often carried out through the Asia-Pacific Network for Global Change Research or regional GCOS initiatives.

62. Some Annex II Parties reported on **international projects and support to developing countries, such as capacity-building, training, technical assistance and support for research, environmental monitoring and observations**, including the development, restoration and maintenance of networks. In some cases such support is provided to neighbouring countries as part of cross-boundary projects. Some Parties (mainly Parties with economies in transition (EIT Parties)) reported on the challenges and problems associated with climate change research (e.g. lack of financial and human resources or low participation rate of the private sector).

## B. Research

63. Research priorities are in many cases driven by national and regional circumstances, although a large number of research topics are common to many Parties. **Research on earth science, the climate system and processes** continues to take place in most Parties. This includes research to improve the understanding of the key drivers of climate change, the global carbon cycle, atmospheric circulation processes, and in some instances also palaeoclimate research. Studies are ongoing on climate variability, trends and occurrence of extreme events, and, in particular, advanced climate modelling and prediction, where some Parties reported on key developments and advances (e.g. development of an Earth Simulator). Regional modelling, projections and scenarios are also receiving increased attention.

64. **Cross-cutting and interdisciplinary research** was emphasized by many Parties; one of its objectives is to address sustainability and environmental issues in an integrated way. A large number of Parties see research as a basis for developing domestic climate policy, not only for assessing policies and measures to address climate change but also for developing adaptation strategies, managing risks and spatial planning. Many Parties referred to the increased emphasis on **research on impacts of and adaptation to climate change** and response strategies, in particular at a regional level. Others identified research on adaptation and emergency preparedness as an emerging priority.

65. **Assessments of climate change impacts** cover a wide range of sectors of society and economies as well as ecosystems, including terrestrial and marine ecosystems (such as land and soil, water resources, agriculture, forestry, human health and biodiversity, oceans, coasts and fisheries); some countries also include research on the polar regions. **Socio-economic analysis** (e.g. assessing environmental and social costs of energy systems, impacts and response options) was also seen as a research priority.

66. **Research on energy**, in some cases in the framework of environment and sustainability, remains of high priority on the research agendas of Parties. Research on the mitigation of climate change aims at supporting emission mitigation measures and mitigation technologies. The main focus of such research is on renewable energy sources, cleaner and more efficient energy conversion and the use of relevant technologies, supply security and sustainability, and the transport sector. Research targeted at GHG reductions and increased carbon removal is also carried out in the agriculture and forestry sector. As some Parties noted, the entry into force of the Kyoto Protocol has resulted in expanded research and development on mitigation.

### C. Systematic observation

67. **Observations undertaken by Parties contribute significantly to global climate monitoring;** most Parties maintain national observation networks which contribute to the GCOS and provide data to World Data Centres in line with the WMO international data exchange standards. In addition, a large number of countries have joined the Group on Earth Observations, which is working towards the Global Earth Observation System of Systems, and/or participate in the European initiative Global Monitoring for Environment and Security. Others participate in regional networks or bilateral and multilateral partnerships on systematic observation.

68. Most reporting Parties run **meteorological atmospheric measurement stations**, which in many cases also provide data to the Global Surface Network and the Global Upper Air Network of GCOS, as well as to the Global Atmosphere Watch and the World Weather Watch under the WMO. Concentrations of carbon dioxide and other GHGs are also directly measured in some countries. Some Parties report on their cooperation with the Global Ocean Observing System (GOOS) and the Global Terrestrial Observing System for **oceanographic and terrestrial observations**, respectively. Parties provided information on the parameters observed (relating to e.g. rivers and lakes, groundwater, snow, ice, glaciers, soil, forests and terrestrial carbon, as well as ocean parameters) as well as the number, type and status of the equipment used and the period for which monitoring of certain parameters is taking place.

69. For the majority of Parties, activities in support of space-based observations occur through international collaboration, for example as a member of, or by active participation in, the European Space Agency and its programmes or the European Organisation for the Exploitation of Meteorological Satellites, or through the use of data, for example by participating in the processing, analysis, interpretation and application of space satellite images, particularly for terrestrial observations (e.g. monitoring vegetation land uses and cover), but also for atmospheric monitoring and ocean and sea forecasting. Some Parties noted their participation in international bodies such as the Committee on Earth Observation Satellites.

70. Some Parties, mainly EIT Parties, noted **deficiencies in their observing systems which in some cases affected the possibility of exchanging data internationally**, for example within GCOS or GOOS. Problems include lack of financial support for modern equipment and training of experts as well as non-homogeneity of data due to changes in instruments and protocols. Other Parties noted the decline in observing programmes and the need for improvements in relation to, for example, homogeneity of data sets, upgrading of instruments and networks, and access to data. Some Parties also reported on planned improvements on these issues, for example long-term measurements of oceanographic systems, enhancement of data quality in some EIT countries, modernization of networks and updating of databases.

## V. Education, training and public awareness

### A. Introduction

71. All Parties reported on education and outreach activities in their NC4 and most of them provided a wealth of information and details on related initiatives and programmes. **While the focus of reporting in the NC3 was on public awareness activities, the NC4 offers a more comprehensive reporting on formal and non-formal education; most Parties recognize that an effective national level of commitment to environmental education is necessary to achieve systemic and long-lasting behavioural change.** Some Parties also reported on their efforts to implement the New Delhi work programme on Article 6 of the Convention (Belgium, EC, Germany, Netherlands and United Kingdom).<sup>11</sup>

<sup>11</sup> Further details on the implementation of this programme can be found in document FCCC/SBI/2007/22.

There is an encouraging trend of providing in the NC4 figures of financial contributions to support Article 6 related activities (Australia, Czech Republic, Portugal, Spain and United Kingdom).

72. The need for sustained effort to raise awareness and provide information on climate change continued to be recognized by most countries. Most Parties reported that **a variety of new and additional education, training and outreach activities, products and policies have been developed to further support the implementation of Article 6 of the Convention**, as shown in box 1. Many of the EIT countries, however, still report on gaps and difficulties in the implementation of education and outreach activities, due to lack of legal and institutional support (Bulgaria and Slovakia), limited dedicated financial resources and capacity (Bulgaria, Lithuania, Romania and Slovakia), lack of reliable or accessible information (Belarus) or lack of coordination among stakeholders (Bulgaria).

**Box 1. Highlights of Article 6 activities, products and policies reported in the NC4**

- Higher level of community understanding of climate change issues;
- Designation of an Article 6 National Focal Point;
- Surveys and market research informing innovative climate change communication strategies;
- Greater emphasis on measurable objectives, tracking performance measurement tools;
- Multiplication of information campaigns;
- Emerging shift in message from awareness-raising to behavioural change;
- Larger number of climate change publications and information products;
- Greater use of electronic means to access up-to-date information on climate change;
- New curricula and increased emphasis on greenhouse gas related issues in university courses;
- More integrated approach to climate change education;
- Intensification of school-based initiatives to raise awareness;
- Increased number of seminars, conferences and rounds of consultations.

### **B. Public awareness of climate change**

73. All countries continued to emphasize the important role of awareness and education in their response to climate change. As a result, education and awareness components have typically been shaped into a broad range of policies and measures to support their implementation among different target groups. Climate change awareness strategies have usually pursued **three key objectives**: ensure broad community understanding of climate change and its impacts; inform key stakeholders of the policies and programmes being implemented to respond to climate change; and encourage industry and individual action and involvement in GHG reduction initiatives.

74. In most countries, communities have become more aware of the significance of climate change. The diversity of stakeholders involved in promoting awareness have contributed to this enhanced understanding. Central governments, through cooperation between various ministries, continue to play a major role in setting strategies and coordinating implementation of Article 6 activities. The range of NGOs that are actively involved in climate change outreach now covers all sectors of the economy in most countries. Municipalities, businesses, mass media and individuals also play an important role in encouraging action by all parts of society in many countries. Industry is also beginning to play a role in education, training and outreach. In a few countries, however, the level of awareness, while growing, is still considered insufficient (Lithuania, Romania and Slovenia).

### C. Education through school systems and training

75. Parties generally recognize that **environmental education is needed for long-lasting behavioural change**. It provides not only the scientific and technical skills required, but also the motivation, justification and social support for pursuing and applying them. In this context, most countries reported that environmental education, including climate change aspects, has become an integral part of primary and secondary education, and that climate change issues are being given more and more attention in higher education. Teacher-training is recognized as key in the implementation of environmental education by most countries.

76. Much of the work relating to climate change education is being taken forward under the banner of sustainable development (e.g. United Kingdom), and the United Nations Decade for Education for Sustainable Development offers a new framework for educational activities (Austria, Belgium, Czech Republic, Finland and Germany). In a number of European countries, the Aarhus Convention<sup>12</sup> continues to open up a new dimension for environmental education (e.g. Denmark and Lithuania).

77. Driven by the understanding that children and young people constitute the general public and the decision makers of tomorrow, sustained action to make this target group aware of climate change issues has not been limited to the formal school setting, and most Parties reported that climate change formal education is enhanced by local, national and global projects at schools (Australia, Austria, Belgium, Finland, France, Greece, Hungary, Iceland, Japan, Lithuania, Monaco, Norway, Poland, Portugal, Romania, Sweden and United States).

78. Parties continued to emphasize the importance of training and the breadth of opportunities it provides to support policies and measures relating to mitigation. A few countries such as New Zealand have confirmed additional policies, including training, to assist energy-intensive businesses to reduce GHG emissions through improved energy efficiency.

### D. International activities

79. As in previous national communications, only a few Parties reported on their international and cooperative activities to support the implementation of Article 6 of the Convention. Activities mentioned include **funding of bilateral and regional activities that focus on capacity-building** (Australia, Austria, Netherlands and Norway); initiating and participating in information networks (Australia, Belgium, Denmark, Finland, Poland, Spain and United Kingdom); research and training; contributing to the work of the IPCC; financial support to regional workshops under the New Delhi work programme, and to the information network clearing house CC:iNet (Belgium, Canada, France, Norway, Netherlands, and United Kingdom).

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<sup>12</sup> Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, adopted on 25 June 1998.

## Annex

**Financial contributions to multilateral institutions and programmes, and  
bilateral financial contributions, by Party**

**Table 6. Financial contributions to multilateral institutions and programmes  
in the period 1997–2004, (millions of United States dollars)**

Donor		World Bank	International Finance Corporation	African Development Bank	Asian Development Bank	European Bank for Reconstruction and Development	Inter-American Development Bank	United Nations Development Programme	United Nations Environment Programme	UNFCCC	Others	Total
Australia	96/97	100.3	4.3		60.8	1.0		7.0	0.8	0.1	4.3	<b>178.6</b>
	97/98	86.6	4.6		78.7			4.3	0.3	0.2	4.2	<b>178.9</b>
	98/99	80.5	5.6		71.0			4.1	0.3	0.2	9.5	<b>171.2</b>
	99/00	80.6	5.3		70.3			4.4	0.3	0.2	9.5	<b>170.6</b>
	00/01	66.1			72.7	8.5		4.0	0.3	0.2	8.7	<b>161.9</b>
	2002	72.9			62.7	8.4		3.7	0.3	0.2	9.0	<b>157.3</b>
	2003	78.9			56.4	7.8		3.8	0.3	0.4	5.4	<b>153.1</b>
	2004	92.2			74.9	6.7		5.0	0.4	0.4	6.4	<b>186.0</b>
Austria <sup>a</sup>	1997	373.1	1.7	8.0	127.9	2.5	391.0				589.5	<b>1 493.7</b>
	1998	47.1		10.5	138.5	3.9	933.0				749.7	<b>1 882.7</b>
	1999	39.9		8.6	120.3	6.4	493.0				52.7	<b>720.9</b>
	2000	584.3		362.9	118.8	8.1	643.0				609.8	<b>2 326.9</b>
	2001			0.3	0.1	5.0	0.5	3.2			66.9	<b>76.1</b>
	2002			0.3	0.2	6.0	0.5	4.2	0.3	0.2	57.4	<b>69.1</b>
	2003			0.3	0.2	7.2	0.3	4.1	0.1	0.1	133.8	<b>146.2</b>
	2004			0.3	0.2	8.0	0.1	6.9	0.5	0.1	149.1	<b>165.3</b>
Belgium <sup>b</sup>	2003	1.1							1.3	0.3	5.6	<b>8.3</b>
	2004	0.6							1.7	0.3	6.7	<b>9.3</b>
Canada	96/97	162.3	6.6	28.5	3.2	0.7	4.0	30.4	1.1	0.4		<b>237.2</b>
	97/98	145.3		37.2	28.2	1.3	3.7	27.0	1.0	0.3		<b>244.0</b>
	98/99	241.4		47.3	29.2	6.3		23.0	1.0	0.3	2.8	<b>351.3</b>
	2000	9.8	235.3	28.8	29.0	5.0	1.3	27.8			2.7	<b>339.8</b>
	2001	52.3	236.3	25.8	31.0	8.7		27.3		0.3		<b>381.8</b>
	2002	9.5	166.9	34.4	62.0	10.0		26.9		4.2	6.2	<b>320.1</b>
	2003	10.1	307.8	51.4	34.8	15.2		31.4	1.8	3.2	13.1	<b>468.8</b>
	2004	0.6	113.6	51.7		12.8		43.4	1.9	0.4	6.9	<b>231.3</b>
Denmark	2000	102.1	1.5	18.1	10.1	2.4	3.2	51.9	1.7		4.4	<b>195.2</b>
	2001	65.1	2.5	25.2	2.9	3.1	1.8	50.5	1.9	0.1	4.6	<b>157.6</b>
	2002	66.0	0.6	36.7	13.4	3.2	0.9	46.9	2.0		4.8	<b>174.6</b>
	2003	70.6	1.5	31.5	10.1	3.8	1.7	56.3	2.3		5.4	<b>183.2</b>
	2004	90.8	1.7	24.3	9.6	4.4	1.6	61.8	2.6	0.2	6.7	<b>203.5</b>
European Community	1997					516.3 <sup>c</sup>		113.7 <sup>d</sup>	2.0 <sup>e</sup>	0.1		<b>632.1</b>
	1998					0.1		13.9	3.3	0.2		<b>17.5</b>
	1999					4.8		13.4	3.2	0.1		<b>21.5</b>
	2000					3.8		12.5	3.5	0.2		<b>20.0</b>
	2001							16.1			2.7	<b>18.8</b>
	2002	0.9						40.3	2.8		3.5	<b>47.5</b>
	2003	2.3						198.9	3.4		5.0	<b>209.5</b>
Finland	1997	13.7		4.2	3.9	27.5	1.8				138.0	<b>189.1</b>
	1998	10.0		5.6	3.7	28.5	1.6				150.0	<b>199.4</b>
	1999	13.0		11.5	4.0	25.7	1.8				129.6	<b>185.6</b>
	2000	13.7		12.8	3.4		1.5	12.0	2.7		57.2	<b>103.3</b>
	2001	30.6		3.3			0.1	12.1	2.6		61.8	<b>110.5</b>
	2002	31.2		15.9	6.7		0.1	12.3	2.7	0.5	74.9	<b>144.4</b>
	2003	35.5		6.0			0.1	15.3	3.3		121.4	<b>181.5</b>

<sup>a</sup> The change between the two reporting period figures is so great that the figures are highly unlikely to be accurate.

<sup>b</sup> Figures provided are for climate change activities and programmes only.

<sup>c</sup> Total 1992–1998.

<sup>d</sup> Total 1997–1999.

<sup>e</sup> Total 1997–1999.

Table 6. (continued)

Donor		World Bank	International Finance Corporation	African Development Bank	Asian Development Bank	European Bank for Reconstruction and Development	Inter-American Development Bank	United Nations Development Programme	United Nations Environment Programme	UNFCCC	Others	Total
France	1997	281.6	11.0	104.6		22.3	7.6				114.6	541.7
	1998	234.6		91.4	29.3	7.5	7.4	7.4	7.4		120.2	505.2
	1999	212.5		87.3	27.1	7.2	8.4	7.2	7.2		112.3	469.2
	2000	224.7		75.2		1.6		6.5	6.6		117.6	432.2
	2004 <sup>f</sup>										2 857.1	2 857.1
Germany	1999										2 236.7	2 236.7
	2000										2 343.6	2 343.6
	2001										2 135.4	2 135.4
	2002										1 996.8	1 996.8
	2003										2 724.6	2 724.6
	2004			1.8				151.3	7.7	0.2	3.1	164.1
Greece	1997	4.2				2.1		0.2	0.5		0.6	7.6
	1998	3.0						13.8	0.3		1.3	18.4
	1999	3.4				10.8		13.5	0.4		0.6	28.7
	2000	3.2				16.8		12.4	0.6		0.5	33.5
	2001	5.6				2.0		0.2		0.04	7.4	15.2
	2002	6.8				2.2		0.3		0.1	7.9	17.2
	2003	4.2				2.1		0.3		0.1	7.8	14.5
	2004	4.4				2.3		0.4		0.1	7.6	14.8
	2005	4.5				2.3		0.4		0.1	8.8	16.1
Iceland	2000	1.2	0.3					0.2			3.0	4.8
	2002	1.2	0.2					0.2			5.1	6.8
	2004	2.3						0.3			1.9	4.4
Italy	1997	20.9	0.6			0.3	1.3	38.4	0.7	0.4	15.6	78.2
	1998	331.8	0.6	33.9	26.3		18.6			0.4	16.6	428.2
	1999	300.6	1.1	0.3	0.2		6.4			0.5	77.6	386.7
	2000	13.8	0.9	3.2			11.0			0.6	45.6	75.1
Ireland	2003	6.4						15.3	1.6		7.5	30.8
	2004	6.3						15.5	1.6		8.6	32.0
	2005	9.0							1.6	2.6	4.7	17.9
Japan	1997	152.1	4.7	1.6	81.1	21.8	17.1	99.0	6.0	0.2	13.6	397.2
	1998	142.6	4.9		59.1	10.5	11.3	80.0	4.9	0.1	11.0	324.4
	1999	87.2	2.9		251.4	9.3	8.8	80.0	4.8	0.2	11.2	455.8
	2000	112.2	3.7	0.9	61.2	8.3	8.3	97.4	4.6		92.8	389.6
	2001	95.5	2.5	0.8	59.3	6.6	7.4	84.0	4.1	0.001	8.2	268.3
	2002	63.8	1.6	0.5	32.7	2.4	5.6	83.8	4.0	0.004	5.6	200.0
	2003	44.9	1.7	0.4	42.3	3.5	6.0	90.6	3.5		2.6	195.4
	2004	40.7	2.8	0.9	53.7	3.7	10.2	87.9	3.7	0.001		203.5
Netherlands	1997	13.7						17.4	1.0		5.4	37.5
	1998	25.6						16.8	1.0	0.2	11.0	54.6
	1999	43.9						14.2	1.2	0.2	7.6	67.1
	2000	21.5						13.0	1.8	0.2	7.0	43.5
	2001	18.9						13.4	3.9		17.6	53.8
	2002	21.9						14.1	7.0		29.8	72.8
	2003	10.2						18.1	5.2		35.7	69.2
	2004	11.2						19.9	15.6		70.0	116.6
Norway	1997	81.7	1.6		0.3		0.7	79.7				164.0
	1998	59.8			0.3	3.7	0.8	80.2	2.0			146.8
	1999	54.6		0.9	0.3	3.7	0.7	76.4	1.0	0.03		137.6
	2000	33.4		0.9		3.4	0.6	90.8	0.7	0.1		129.9
	2001	18.1		0.9			1.1	79.3	2.6		48.1	150.1
	2002	63.7		1.2	0.3		0.4	85.7	7.6		75.7	234.5
	2003	24.8		1.3	7.7		0.5	99.6	7.9	0.6	76.5	218.9

<sup>f</sup> France reported only a total sum for 2004 in its NC4.

**Table 6. (continued)**

Donor		World Bank	International Finance Corporation	African Development Bank	Asian Development Bank	European Bank for Reconstruction and Development	Inter-American Development Bank	United Nations Development Programme	United Nations Environment Programme	UNFCCC	Others	Total
New Zealand	1997	0.5	0.5		6.5			2.9				<b>10.4</b>
	1998	0.4	0.2		4.5			2.3	0.1	0.01		<b>7.5</b>
	1999	0.4	0.2		4.6			2.3	0.01			<b>7.5</b>
	2000	0.3	0.2		3.5			2.0				<b>6.0</b>
	2001	0.2	0.2		3.9			2.5	0.1		2.4	<b>9.2</b>
	2002	0.3			4.6			2.9	0.1		1.4	<b>9.2</b>
	2003				5.7			3.6	0.2		2.0	<b>11.6</b>
	2004				8.3			4.2	0.2		4.2	<b>16.9</b>
Portugal	2001	0.3		5.3		1.1		1.5		0.04	103.0	<b>111.1</b>
	2002	6.9		0.2	43.2	1.1	0.7	3.7	0.1	0.1	112.9	<b>168.9</b>
	2003	10.8		16.7	7.5	1.3	0.2	1.7		0.1	146.4	<b>184.7</b>
	2004	12.4		9.3	7.9	1.5	0.2	2.5		0.1	183.8	<b>217.7</b>
Spain	1997	44.1		11.3	8.9	3.8	5.4				20.4	<b>93.9</b>
	1998	56.0	0.9	13.0	13.4	2.0	6.4				21.3	<b>113.0</b>
	1999	64.9		11.1	0.1	13.1	19.5				8.5	<b>117.2</b>
	2000	33.3		4.7	0.2	5.3	14.3				6.9	<b>64.7</b>
	2001	35.5		13.9	3.8	6.5	25.9	5.4	0.5	0.2	449.4	<b>541.2</b>
	2002	82.4		16.8	58.1	16.9	22.7	5.7	0.6	0.5	455.9	<b>659.6</b>
	2003	6.4		3.0	10.8		21.2	6.8		0.6	637.8	<b>686.6</b>
	2004	246.2		31.4	44.9		20.9	7.5		0.5	695.2	<b>1 046.6</b>
Switzerland	1997	72.8	3.6	20.1	16.1	1.4	10.3	40.2				<b>164.5</b>
	1998	31.7		35.4	7.5	3.9		41.6				<b>120.1</b>
	1999	83.2		28.9	11.1	4.1	2.0	32.7				<b>162.0</b>
	2000	83.9		52.4	6.0	4.4		29.6				<b>176.3</b>
	2001	2.0		28.4	8.2	5.3	0.9	30.8		0.3	113.2	<b>189.3</b>
	2002			30.7	8.9	6.4	1.0	33.4		0.3	19.8	<b>100.5</b>
	2003			54.6	10.3	7.1	1.0	38.7		0.4	156.0	<b>268.1</b>
	2004			30.2	11.2	7.5	0.9	41.8		0.5	174.5	<b>266.5</b>
United Kingdom	97/98	0.3	23.4	53.1	3.9	1.2	37.3	0.3	0.1	0.8	3.8	<b>124.2</b>
	98/99	0.3	30.6	50.9	13.1	2.0	49.3	0.5	0.03	1.1	3.7	<b>151.5</b>
	99/00	0.3	24.3	50.3	14.9	2.4	53.2	0.2	0.2	1.0	3.3	<b>150.1</b>
	2003									0.2		<b>0.2</b>
	2004			1.8				151.3	7.7	0.2	3.1	<b>164.1</b>
2005									0.2		<b>0.2</b>	
United States	1997	700.0	6.7		113.2	11.9	25.6	76.0	11.0	2.6		<b>947.0</b>
	1998	1 034.0		45.0	150.0	35.8	25.6	93.7	9.0	3.9		<b>1 397.0</b>
	1999	800.0		128.0	223.2	35.8	25.6	97.4	12.0	3.8		<b>1 325.8</b>
	2000	771.1		131.1	90.7	35.8	25.6	77.9	10.0	4.9		<b>1 147.1</b>
	2001	783.3		105.9	71.8	35.7	34.9	87.1	10.0		59.5	<b>1 242.7</b>
	2002	797.4		105.1	98.0	35.8	18.0	97.1	10.8		77.7	<b>1 297.4</b>
	2003	846.1		112.4	97.3	35.6	42.7	100.0	10.5		62.9	<b>1 355.5</b>
	2004	908.9		117.1	143.6	35.2	24.9	101.4	10.9		60.8	<b>1 448.7</b>
<b>Total</b>		<b>10 849.3</b>	<b>146.6</b>	<b>1 516.2</b>	<b>2 116.2</b>	<b>549.3</b>	<b>574.9</b>	<b>3 286.9</b>	<b>264.5</b>	<b>29.3</b>	<b>8 923.4</b>	<b>29 094.7</b>



**Table 7. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: capacity-building (millions of United States dollars)**

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia	0.1	0.1	0.8	0.8	1.7		8.3	8.0	8.8	25.1
Austria						0.1	0.1	0.6	0.1	1.0
Belgium										
Canada	21.6	24.5	32.9	3.3	82.3	4.8	8.9	8.7	10.7	33.2
Denmark				5.9	5.9	7.8	19.3	22.1		49.2
European Community										
Finland	0.1	2.6	4.7		7.4					
France <sup>a</sup>										
Germany										
Greece						0.7	0.3	0.8		1.9
Ireland								0.1	0.1	0.2
Italy	2.9	4.9	3.7	3.0	14.5					
Japan	43.2	48.9	46.6		138.7					
Netherlands										
New Zealand	0.7	1.6	1.6	2.2	6.1	0.1	0.2	0.5	1.2	1.8
Norway			0.6	0.5	1.1					
Portugal										
Spain		1.1	1.4	1.8	4.3	0.2	0.2	0.4	1.2	2.0
Sweden	3.0	34.8	31.3	35.7	104.8	38.5	52.7	58.5		149.6
Switzerland										
United Kingdom								0.2		0.2
United States	779.1	754.6	2 484.7	943.2	4 961.7				0.1	0.1
<b>Total</b>	<b>850.7</b>	<b>873.1</b>	<b>2 608.3</b>	<b>996.4</b>	<b>5 328.4</b>	<b>52.4</b>	<b>90.0</b>	<b>99.9</b>	<b>22.2</b>	<b>264.4</b>

<sup>a</sup> France reported a bilateral contribution of about EUR 220 million per year including support to the implementation of the national adaptation programmes of action (NAPAs) and capacity-building.

**Table 8. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: coastal zone management (millions of United States dollars)**

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia				0.3	0.3	0.5	1.2	1.7	1.2	4.5
Austria										
Belgium										
Canada	2.3	4.2	2.3	0.2	9.0	0.2	0.2	0.5	0.3	1.2
Denmark				3.1	3.1	1.8	7.9			9.7
European Community										
Finland	0.2	0.7	0.5		1.4					
France										
Germany										
Greece								0.3		0.3
Ireland								0.6	0.7	1.3
Italy		0.6			0.6					
Japan	589.3	145.5	497.9		1 232.7					
Netherlands										
New Zealand	0.3	0.6	0.4	0.2	1.5	0.004			0.007	0.011
Norway										
Portugal										
Spain										
Sweden	0.4	4.3	6.7	3.2	14.6	7.1	4.8	4.5		16.4
Switzerland										
United Kingdom										
United States	9.1	15.5	5.2	22.2	52.0				0.02	0.02
<b>Total</b>	<b>601.6</b>	<b>171.4</b>	<b>513.0</b>	<b>29.2</b>	<b>1 315.3</b>	<b>9.5</b>	<b>14.2</b>	<b>7.5</b>	<b>2.2</b>	<b>33.3</b>

**Table 9. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: other vulnerability assessment (millions of United States dollars)**

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia	1.3	0.9	1.0	1.1	4.3	1.2	0.1			1.2
Austria						0.2	0.2	0.2	0.1	0.7
Belgium								11	9.4	
Canada	0.8	1.1	2.1	0.2	4.2	0.6	0.5	1.1	1.9	4.0
Denmark				1.0	1.0	4.1				4.1
European Community										
Finland	8.5	1.9	2.7		13.1					
France										
Germany	70.8	16.4	9.1							
Greece							0.1	0.05		0.2
Ireland									4.2	4.2
Italy		0.1			0.2					
Japan	51.1	81.0	42.0		174.1					
Netherlands						4.0	10.2	10.5	8.2	
New Zealand	0.02	0.02	0.03		0.1					
Norway										
Portugal										
Spain									0.4	0.4
Sweden	11.5	19.1	27.0	21.7	79.3	3.0	4.8	6.2		13.9
Switzerland						0.3	0.4	0.2	0.9	
United Kingdom									9.4	9.4
United States	1.9	2.0	2.9	3.4	10.2	0.7			6.0	6.6
<b>Total</b>	<b>145.9</b>	<b>122.5</b>	<b>86.9</b>	<b>27.4</b>	<b>286.4</b>	<b>23.4</b>	<b>16.2</b>	<b>29.2</b>	<b>31.1</b>	<b>44.8</b>

**Table 10. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: energy (millions of United States dollars)**

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia	21.4	3.3	1.6	3.7	30.0	1.9	2.3	2.9	2.0	9.1
Austria	3.7	2.5	3.7		9.9	2.3	1.4	1.5	2.3	7.5
Belgium								1.7	1.2	2.9
Canada	151.9	132.4	152.6	15.2	452.1	11.3	8.9	10.6	8.6	39.4
Denmark				27.0	27.0	16.8	76.3	29.2		122.4
European Community	324.8	487.5			812.3	120.1	98.9	263.5		482.4
Finland	0.2	2.4	5.0		7.6					
France		56.5			56.5	4.4	1.6	2.1	51.5	59.6
Germany	193.4	218.0	92.7	146.1	650.2	132.7	173.0	164.0		469.7
Greece							0.1			0.1
Iceland										
Ireland										
Italy	1.7	0.1	7.2	0.1	9.1					
Japan	188.0	875.6	859.1	666.9	2 589.6	430.3	514.9	1 516.1		2 461.3
Netherlands	12.2	16.5	16.1	17.9	62.7	10.2	10.7	12.9	14.2	48.0
Norway			63.1	54.3	117.4	60.1	112.4	53.4		225.9
New Zealand	0.4	0.2	0.4	0.2	1.2	1.0	0.8	0.8	1.0	3.5
Portugal										
Spain		0.3	0.2	0.3	0.8	4.8	3.7	21.4	0.6	30.5
Sweden	26.0	25.6	31.2	34.0	116.8	53.9	36.0	43.8		133.7
Switzerland	2.0	1.6	0.9	0.4	4.9	0.1	0.2	1.1	2.8	4.3
United Kingdom	139.5	110.6	131.0	381.1		0.4		0.4		
United States	325.5	390.5	523.8	624.4	1 864.2	13 816.4			15 878.8	29 695.2
<b>Total</b>	<b>1 390.7</b>	<b>2 323.6</b>	<b>1 888.6</b>	<b>1 590.5</b>	<b>7 193.4</b>	<b>14 666.7</b>	<b>1 041.2</b>	<b>2 125.0</b>	<b>15 962.9</b>	<b>33 795.8</b>

**Table 11. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: transport (millions of United States dollars)**

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia	0.7	0.04			<b>0.7</b>	0.2	0.1	0.1	0.4	<b>0.8</b>
Austria	0.3	0.2			<b>0.5</b>					
Belgium										
Canada	4.1	2.0	3.0	0.3	<b>9.4</b>	0.3	0.4	0.1	0.8	<b>1.7</b>
Denmark							4.1			<b>4.1</b>
European Community <sup>a</sup>	495.7	1 042			<b>1 537.7</b>	179.2	300.4	999.7		<b>1 479.3</b>
Finland			2.4		<b>2.4</b>					
France <sup>b</sup>		4.3			<b>4.3</b>	2.8	0.5	93.7	220.2	<b>317.2</b>
Germany	45.4	50.8	12.9	83.9	<b>193.0</b>	94.2	65.5	92.0		<b>251.6</b>
Greece										
Iceland										
Ireland										
Italy										
Japan		586.8	673.3	762.4	<b>2 022.5</b>	302.4	0.4	293.5		<b>596.3</b>
Netherlands						0.1		0.3	0.1	<b>0.5</b>
Norway				1.0	<b>3.4</b>					
New Zealand										
Portugal										
Spain						0.03	0.08			<b>0.11</b>
Sweden	1.0	3.4	2.6	1.9	<b>8.9</b>	2.6	4.8	19.9		<b>27.4</b>
Switzerland	1.2	1.2	2.1	1.7	<b>6.2</b>	2.5	1.8	2.6	3.1	<b>10.0</b>
United Kingdom										
United States	4.7	8.6	6.8	5.2	<b>25.3</b>	38 711.8			39 020.6	<b>77 732.4</b>
<b>Total</b>	<b>553.1</b>	<b>657.3</b>	<b>703.1</b>	<b>855.4</b>	<b>3 811.0</b>	<b>39 296.2</b>	<b>378.0</b>	<b>1 501.9</b>	<b>39 245.2</b>	<b>80 421.2</b>

<sup>a</sup> With the classification used within the European Community it has not been possible to identify the parts that are directly relevant to climate change.

<sup>b</sup> Figures for 2001–2004 include transport and storage.

**Table 12. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: forestry (millions of United States dollars)**

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia	8.8	8.4	8.7	11.2	<b>37.1</b>	9.3	2.8	4.7	5.6	<b>22.4</b>
Austria	0.7	2.0	1.0		<b>3.7</b>	1.9	1.6	1.2	1.4	<b>6.1</b>
Belgium								0.1	0.1	<b>0.2</b>
Canada	14.8	25.6	41.0	4.1	<b>85.5</b>	3.9	1.8	3.8	4.6	<b>14.0</b>
Denmark				8.7	<b>8.7</b>	7.1	11.6	11.0		<b>29.7</b>
European Community	57.7	67.4			<b>125.1</b>		27.8	5.7		<b>33.6</b>
Finland	5.9	21.5	1.6		<b>29.0</b>					
France <sup>a</sup>						3.8	9.3	0.8	3.6	<b>17.6</b>
Germany	48.6	66.9	54.8	124.2	<b>294.5</b>	113.8	124.5	117.8		<b>356.1</b>
Greece							0.1			<b>0.1</b>
Iceland										
Ireland										
Italy			0.5	0.1	<b>0.6</b>					
Japan	94.0	125.2	78.2	42.3	<b>339.7</b>	135.9	103.1	392.5		<b>631.6</b>
Netherlands						11.7	11.6	11.3	14.2	<b>48.9</b>
Norway										
New Zealand	2.4	2.2	1.9	0.9	<b>7.4</b>	1.4	0.7	0.9	0.1	<b>3.1</b>
Portugal										
Spain		1.7	2.8	2.3	<b>6.8</b>	0.5	0.4	0.7	0.2	<b>1.8</b>
Sweden	8.0	3.2	3.0	2.5	<b>16.7</b>	6.3	10.3	11.4		<b>28.0</b>
Switzerland				0.01	<b>0.01</b>	0.01	0.08	0.04	0.02	<b>0.15</b>
United Kingdom	37.3	30.1	34.5		<b>101.9</b>					
United States	159.8	83.3	81.3	114.9	<b>439.3</b>	65.7			142.8	<b>208.5</b>
<b>Total</b>	<b>438.0</b>	<b>437.5</b>	<b>309.3</b>	<b>311.1</b>	<b>1 495.9</b>	<b>361.3</b>	<b>305.6</b>	<b>562.0</b>	<b>172.7</b>	<b>1 401.6</b>

<sup>a</sup> Figures for 2001–2004 include rural development, forest and desertification.

**Table 13. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: agriculture** (*millions of United States dollars*)

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia				1.1	1.1	0.6	3.8	6.9	7.4	18.7
Austria						0.9	0.8	1.2	1.4	4.3
Belgium								3.4	3.8	7.2
Canada	7.8	12.9	20.3	2.0	43.0	1.5	2.6	2.1	2.8	8.9
Denmark				7.2	7.2	2.5	0.2			2.6
European Community	199.2	413.4			612.6					
Finland	6.0	9.0			15.0					
France		4.7			4.7					
Germany	5.4				5.4					
Greece										
Iceland										
Ireland										
Italy	1.4	0.2	1.7	0.9	4.2					
Japan		19.2			19.2	2.8	2.0	2.0		6.8
Netherlands						0.1		2.7	2.9	5.7
Norway										
New Zealand	1.7	1.3	1.3	1.4	5.7		0.1	0.1	0.5	0.7
Portugal										
Spain		4.2	4.6	4.9	13.7	0.1	0.1	0.3	0.8	1.3
Sweden	7.6	6.5	8.2	10.6	32.9	9.8	12.4	13.4		35.6
Switzerland										
United Kingdom	101.0	91.9	140.5		333.4					
United States	0.4	0.1	3.3	27.9	31.7	7 439.7			8 538.8	15 978.5
<b>Total</b>	<b>330.5</b>	<b>563.4</b>	<b>179.9</b>	<b>56.1</b>	<b>1 129.9</b>	<b>7 458.1</b>	<b>22.1</b>	<b>31.9</b>	<b>8 558.2</b>	<b>16 070.3</b>

**Table 14. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: waste management** (*millions of United States dollars*)

Donor	1997	1998	1999	2000	Total 1997–2000	2001	2002	2003	2004	Total 2001–2004
Australia							0.3	0.4	1.2	1.9
Austria						0.2				0.3
Belgium										
Canada	7.8	10.8	9.8		28.4	0.9	0.9	1.3	0.8	3.9
Denmark				1.0	1.0	0.1		1.7		1.8
European Community										
Finland										
France						10.6	2.7	1.2	1.2	15.7
Germany	44.7	31.4	51.6	2.5	130.2	23.8	9.4	22.6		55.7
Greece							0.1	0.3		0.4
Iceland										
Ireland										
Italy	0.1				0.2					
Japan	44.6	59.7	7.8		112.1	15.4	9.8	5.7		31.0
Netherlands										
Norway										
New Zealand				0.1	0.1	0.2	0.1	0.2	0.2	0.7
Portugal										
Spain		1.5	1.1	1.2	3.8					
Sweden	0.6	1.3	1.6	1.3	4.8	5.6	8.2	13.1		26.9
Switzerland										
United Kingdom										
United States	0.1	39.0	0.7	1.0	40.8				8 538.8	8 538.8
<b>Total</b>	<b>97.9</b>	<b>143.7</b>	<b>72.7</b>	<b>7.0</b>	<b>321.3</b>	<b>56.9</b>	<b>31.5</b>	<b>46.4</b>	<b>8 542.2</b>	<b>8 677.0</b>

**Table 15. Bilateral financial contributions to facilitate the implementation of the Convention in relation to adaptation, 1997–2004: industry (millions of United States dollars)**

<b>Donor</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>Total 1997–2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>Total 2001–2004</b>
Australia	1.8	2.9	3.3	0.4	<b>8.4</b>	0.5			0.1	<b>0.6</b>
Austria							1.2	0.1	1.5	<b>2.9</b>
Belgium										
Canada	24.0	21.9	21.3	2.2	<b>69.4</b>	2.9	3.8	3.9	6.1	<b>16.6</b>
Denmark				3.0	<b>3.0</b>	4.9	1.8	3.1		<b>9.8</b>
European Community										
Finland	0.8				<b>0.8</b>					
France										
Germany	1.4	6.6	6.1	34.1	<b>48.2</b>	31.0	21.1	46.9		<b>99.0</b>
Greece										
Iceland										
Ireland										
Italy										<b>4.6</b>
Japan	51.6	457.5	351.4		<b>860.5</b>	4.0		0.7		
Netherlands										
New Zealand	0.03	0.01	0.02	0.04	<b>0.1</b>					
Norway										
Portugal										
Spain		0.9	0.7	0.7	<b>2.3</b>					
Sweden	1.7	4.7	5.0	6.8	<b>18.2</b>	2.4	2.0	2.3		<b>6.6</b>
Switzerland	1.3	1.3	1.1	1.0	<b>4.7</b>	0.1	0.2	0.3	0.3	<b>0.9</b>
United Kingdom										
United States	1.8	4.0	6.4	6.7	<b>18.9</b>	71 752.6			72 778.2	<b>144 530.8</b>
<b>Total</b>	<b>84.4</b>	<b>499.8</b>	<b>395.3</b>	<b>55.0</b>	<b>1 034.6</b>	<b>71 798.2</b>	<b>30.2</b>	<b>57.2</b>	<b>72 786.3</b>	<b>144 671.8</b>

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