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National communications from Parties not included in Annex I to the Convention

Compilation and synthesis of initial national communications

**Sixth compilation and synthesis of initial national communications from
Parties not included in Annex I to the Convention**

*Note by the secretariat**

Executive summary

Summary

The Conference of the Parties (COP), at its ninth session, requested the secretariat to prepare a compilation and synthesis of information contained in all initial national communications submitted by Parties not included in Annex I to the Convention (non-Annex I Parties) up to 1 April 2005, for its consideration at its eleventh session. This document and its addenda (FCCC/SBI/2005/18/Add.1-6) present information contained in 122 initial national communications from non-Annex I Parties. The addenda describe and discuss the following major issues, taking into account national circumstances, as well as needs and constraints, as they relate to the issues covered: sustainable development and the integration of climate change concerns into medium- and long-term planning; inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases; measures contributing to addressing climate change; research and systematic observation; climate change impacts, adaptation measures and response strategies; and education, training and public awareness.

At the twenty-third session of the Subsidiary Body for Implementation, Parties may wish to provide further guidance to the secretariat on the compilation and synthesis of information from national communications of non-Annex I Parties.

* This document is submitted after the due date because all the necessary information was not available on time.

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I. Introduction

A. Mandate

1. Article 4, paragraph 1, and Article 12, paragraph 1, of the Convention require all Parties to communicate information to the Conference of the Parties (COP). Article 12, paragraph 5, specifies that each Party not included in Annex I to the Convention (non-Annex I Party) shall make its initial communication within three years of the entry into force of the Convention for that Party, or of the availability of financial resources in accordance with Article 4, paragraph 3. Parties that are least developed countries may make their initial communication at their discretion.

2. The COP, by its decisions 10/CP.2, 12/CP.4, 7/CP.5, 3/CP.6, 30/CP.7 and 2/CP.8, requested the secretariat to compile and synthesize the information provided in initial national communications from non-Annex I Parties into reports for consideration by the Subsidiary Body for Implementation (SBI) and the COP. To date, five compilation and synthesis reports have been produced.¹ The COP, by its decision 2/CP.9, requested the secretariat to prepare a sixth compilation and synthesis of information contained in all initial national communications submitted up to 1 April 2005 for consideration at its eleventh session.

B. Scope of the note

3. This document builds upon the five previous compilation and synthesis reports, which covered initial national communications from 99 non-Annex I Parties. It compiles and synthesizes information presented in the 122 initial national communications submitted to the secretariat by 1 April 2005. The most recent initial national communications that have been included since the fifth compilation and synthesis report are those from Brazil, Cameroon, Central African Republic, China, Comoros, Democratic People's Republic of Korea, Dominican Republic, Gabon, Gambia, India, Madagascar, Malawi, Malta, Nepal, Nigeria, Pakistan, Palau, Solomon Islands, South Africa, Sudan, United Republic of Tanzania, Viet Nam and Zambia.

4. This sixth compilation and synthesis report consists of seven parts: an executive summary and six thematic reports. This executive summary describes key issues covered in the thematic reports as well as the status of the preparation of national communications from non-Annex I Parties. The six thematic reports provide an overview of the vast amount of information provided by non-Annex I Parties on activities in the following areas: sustainable development and the integration of climate change concerns into medium- and long-term planning (FCCC/SBI/2005/18/Add.1); inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHGs) (FCCC/SBI/2005/18/Add.2); measures contributing to addressing climate change (FCCC/SBI/2005/18/Add.3); research and systematic observation (FCCC/SBI/2005/18/Add.4); climate change impacts, adaptation measures and response strategies (FCCC/SBI/2005/18/Add.5); and education, training and public awareness (FCCC/SBI/2005/18/Add.6).

5. The report highlights information on key issues reported in the initial national communications as well as problems and constraints encountered by non-Annex I Parties in using the guidelines for the preparation of initial communications by non-Annex I Parties annexed to decision 10/CP.2² (hereinafter referred to as the UNFCCC guidelines), and on other issues raised in the initial national communications. The information contained in the executive summary and the thematic reports is structured in accordance

¹ FCCC/SBI/1999/11, FCCC/SBI/2000/15, FCCC/SBI/2001/14 and Add.1, FCCC/SBI/2002/8, FCCC/SBI/2002/16 and FCCC/SBI/2003/13.

² FCCC/CP/1996/15/Add.1.

with the UNFCCC guidelines. This report also contains a complete list of Parties that have submitted their initial and second national communications as at 20 September 2005 (see annex).

6. The compilation and synthesis also aims to note problems reported in initial national communications on the use of guidelines for the preparation of initial communications by non-Annex I Parties, and on other issues communicated by non-Annex I Parties, with a view to further enhancing the comparability and focus of the national communications.

C. Possible action by the Subsidiary Body for Implementation

7. The degree of detail in reporting varied among Parties depending on national circumstances and on how Parties decided to implement the guidance outlined in decision 10/CP.2. The adoption by the COP of revised guidelines for the preparation of national communications from Parties not included in Annex I to the Convention, annexed to decision 17/CP.8, is expected to result in more detailed national communications. Parties may wish to take this into account when considering this report and in preparing to submit information in accordance with the revised guidelines.

8. The SBI may wish to consider the information contained in this document and make recommendations thereon. The information presented in this document could also serve as an input to the work conducted by the Consultative Group of Experts on National Communication from Parties not included in Annex I to the Convention (CGE) on examination of initial national communications to be presented for consideration by the SBI at its twenty-fourth session (May 2006).

II. National circumstances

9. The initial national communications provided an overview of each country's socio-economic situation and trends in various levels of detail. National circumstances were described in a number of ways and through the use of various indicators. The information on national circumstances provides the basis for understanding a Party's vulnerability, and its capacity and options for adapting to the adverse effects of climate change, as well as its options for GHG abatement within the broader context of sustainable development.

10. Parties provided information on their geography, climate and economic background, as well as on development priorities, objectives and particular circumstances. For example, some Parties mentioned land area and population size as important determinants of economic development (Brazil, China, India, Nigeria). The total population of Parties covered in this report is more than 4.5 billion, with individual populations varying widely from about 3,000 in the case of Niue to about 1.2 billion in China, the world's most populous country. Parties also reported on population distribution patterns that have important implications for, among other things, ownership of cars or vehicles, occupancy of private houses, and demand for energy and therefore affect the emissions from transport and the residential sector.

11. Population growth in the past decade in most of the Parties was around 1.5 per cent annually on average. Population density is high in a number of Parties – for example, 324 persons/km² in India in 2001. For some Parties, a high percentage of the population live in absolute poverty. Consequently, poverty alleviation and increasing food production and access to potable water supply systems emerged as important development priority areas.

12. Most reporting Parties belonged to the low-income group, with GDP per capita in some cases less than USD 500 (in 1995 prices adjusted for purchasing power parity). There were very few Parties that could be classified as middle-income with GDP per capita of USD 15,000–20,000 (for example Bahamas and Malta). Most of the reporting Parties provided information on the evolution of their economies, in particular on the effects of globalization on national economies. For example, Kazakhstan

reported that as a result of the transition to a market economy, its GDP declined considerably. Other Parties mentioned that fluctuations in the supply and demand of commodities on world markets affected their economies negatively.

13. Some Parties reported that although their economies are on a rapid development path, they are making a positive contribution to limiting the increase of GHG emissions and protecting the global climate through a decline in the energy intensity of production. Notably, China reported that since the 1980s, through various policies and measures, it has succeeded in supporting rapid economic development with a relatively low growth rate of energy consumption and associated GHG emissions.

14. The importance of different economic sectors varied among countries. A majority of the Parties mentioned that their service sectors contributed 40 per cent or more to their GDP. In a few Parties, the industrial sector contributed substantially to the GDP, for example 72 per cent in the Republic of Korea, 48 per cent in China, 32 per cent in Malaysia, 28 per cent in Algeria and 25 per cent in Ghana and South Africa.

15. Most Parties stressed that agriculture is considered to be a development priority, with a view to ensuring food security and to increasing its contribution to the GDP. Agriculture's share of GDP ranged from 0.8 per cent for the Federated States of Micronesia to 56.4 per cent for the Lao People's Democratic Republic. Similarly, agricultural area as a percentage of total land area varied widely, ranging from 0.6 per cent for Jordan to 82 per cent for Turkmenistan. The percentage of the labour force engaged in agriculture and associated food processing and transportation activities also varied widely.

16. Almost all Parties stressed that deforestation was an important issue in their countries and provided information on their forest management practices – reforestation, exploitation rules, conservation practices, protected areas, territorial land, national parks and forest reserves. Several Parties (Bolivia, Brazil, Côte d'Ivoire, Democratic Republic of the Congo, Honduras, Indonesia, Lao People's Democratic Republic, Republic of Korea) reported that enhancing sink capacity is an important measure for abatement of GHG emissions. In many cases Parties quantified the sizes of their forest areas. The largest forest area reported was in Brazil with 560 million hectares, followed by China and the Democratic Republic of the Congo, each with more than 100 million hectares.

17. Most Parties provided detailed information on resources, policies and institutions in the energy sector, and others classified end-use consumption on the basis of energy carriers such as electricity and heat. Many Parties also presented estimated reserves of fossil fuels and/or non-fossil-fuel energy sources. These included quantitative comparisons between total reserves over time and qualitative assessments of the sufficiency of the reserves to meet current and projected energy needs. South Africa reported on its 60 billion tonnes of coal reserves and its dependence on this energy source for 90 per cent of its electricity generation. India and many other Parties also indicated that coal will be the mainstay of power production for the foreseeable future.

18. Many reporting Parties mentioned that they rely heavily on fossil fuel imports to meet their energy needs, in addition to using their indigenous energy sources, such as biomass. Some Parties, however, are net exporters of fossil fuels, with the value of these exports ranging from 20 to 67 per cent of the country's total exports. Some of these Parties reported on their high level of vulnerability to the possible impacts of response measures implemented by Parties included in Annex I to the Convention, as their economies are highly dependent on income generated from the production, processing, and export of fossil fuels.

19. Cleaner fossil fuels, such as natural gas, are favoured because of their advantages in relation to concerns about environmental issues and GHG emissions. Many Parties provided information on alternative energy resources and mentioned that these include photovoltaic, solar thermal, wind,

hydroelectric, geothermal, oil shale, and biomass energy. Some Parties reported substantial hydroelectric power generation in their countries.

20. Many Parties highlighted specific aspects of their climatic circumstances including exposure to extreme weather events. For example, more than half of the initial national communications reported on the effects of the El-Niño Southern Oscillation (ENSO) phenomenon. Most Parties stressed that they are already experiencing stresses from current climate and climate related events and phenomena that could be exacerbated by future climate change, a factor which makes their economies as well as their infrastructure highly vulnerable. More than 40 Parties mentioned having arid and semi-arid regions that would be affected by the adverse effects of climate change. More than 30 Parties reported that they experience serious flooding and many others, including small island developing States, reported adverse effects of tropical cyclones.

21. Some Parties noted that the institutional framework of each government and the level of coordination among ministries and agencies in the decision-making process is centrally important to the understanding of a country's climate change monitoring and other response activities. A few Parties highlighted that it is also important to understand that governments face competing demands, which may be perceived as conflicting with climate change policies, such as economic growth, security of energy supply, poverty reduction and employment. Institutional arrangements varied among Parties and were not always well described. However, many Parties mentioned the creation of specific institutional frameworks dedicated to combating climate change. These included inter-ministerial climate change coordination committees, technical working groups undertaking specific studies on inventories, mitigation, vulnerability and adaptation, and climate research centres coordinating national studies. The participation of stakeholders, including non-governmental organizations (NGOs), was mentioned to be an important means of ensuring continuity of climate change activities.

III. Sustainable development and the integration of climate change concerns into medium- and long-term planning

22. The UNFCCC guidelines request non-Annex I Parties to include information on programmes relating to sustainable development in their initial national communications. Most Parties followed these guidelines and included sustainable development strategies, priorities and programmes in their initial national communications. Some Parties made reference to Agenda 21 and millennium development goals, which have guided them in formulating and implementing policies that integrate climate change with sustainable development. Priorities for sustainable development mentioned by Parties included poverty alleviation, access to basic education and health care, control of population growth, rational use of energy and natural resources, promotion of ecologically sound technologies, and environmental protection.

23. Different national circumstances determine to a large extent countries' priorities and goals for sustainable development. Climatic, geographic, demographic and land-use profiles, natural resources endowment, energy mix and economic structures are among the most important aspects of national circumstance affecting the profile of a country's sustainable development priorities and how climate change can be integrated into the planning process.

24. For many Parties, poverty reduction is the overriding aim and the key for attaining millennium development goals. Many Parties also highlighted the importance of agriculture for food security and rural development.

25. Many Parties are taking climate change into account in current and future national planning in accordance with their own development priorities. Some Parties adopted a sectoral approach to integrate climate change concerns into development planning on economy, urbanization, environment and

ecosystem, and forestry. Others adopted a more top-down approach, i.e. to include climate change issues in the overall national planning. Others combined the top-down and sectoral approaches, for example to incorporate climate and other environmental concerns when developing plans to meet future energy supply and demand.

26. Many institutional and governmental initiatives have been undertaken by non-Annex I Parties for better integration, coordination and implementation of climate change activities at national and local levels. Many Parties developed national action plans for climate change, which serve as the frameworks for national planning and capacity-building efforts by government agencies and across other sectors.

27. Most Parties have relevant legislation on environment in place, although these largely focus on domestic concerns. The major challenge lies in difficulties in the implementation and enforcement of environmental laws, including due to administrative and institutional difficulties, inconsistent policies and legislation across different sectors, or lack of capacity and resources. Efforts to amend and update environmental legislation to include global concerns such as climate change are under way by many Parties.

28. Many initiatives and programmes addressing climate change will have co-benefits for development and local environment, representing win-win strategies. Many Parties recognized the co-benefits and emphasized the need for integrated approaches. They also support following a “no regrets” approach, in particular for adaptation, because of the uncertainty about impacts of climate change on specific regions or countries.

29. Some Parties indicated the need to re-examine and assess planned or ongoing structural change in energy and industry from a climate change perspective. These changes involve replacement of capital stock and avoiding long-term, carbon-intensive technology lock-in. Some Parties stressed that these changes could bring benefit for sustainable development and should be embarked on as early as possible.

30. A few Parties, which are highly dependent on income generated from the production, processing and export of fossil fuels, such as coal and petroleum, are concerned about the possible impacts on their economies of the implementation of mitigation measures by developed country Parties and are taking steps to assess these potential impacts. South Africa, the world’s largest producer of coal-based synthetic oil, has established the Fund for Research into Development, Growth and Equity. Iran assessed impacts using a general equilibrium model MS-MRT (Multi Sector-Multi Region Trade), and estimated that impacts on the national economy could range from a potential loss of USD 6.3 billion to a potential gain of USD 1.6 billion (at 1995 prices) by 2030.

31. Most Parties have identified their needs, barriers and constraints to the integration of climate change policies and activities into national sustainable development plans and actions. Some of the needs identified by non-Annex I Parties for effective integration of climate change into sustainable development are:

- (a) Ability to incorporate climate change and other environmental issues into social-economic and/or sectoral plans and in efforts to achieve Millennium Development Goals;
- (b) Capacity to mainstream mitigation and adaptation strategies into broader national development;
- (c) Ability to formulate, analyse and implement integrated strategies and policies;
- (d) Capacity for coordination and support mechanisms at national and local levels;
- (e) Ability to assess and plan for mitigation, adaptation and integrated actions;

- (f) Data collection, processing and management relating to integrated assessment and decision-making;
- (g) Institutional strengthening and capacity to seek synergy among conventions at the national level.

IV. Inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases

32. In accordance with Article 4, paragraph 1 (a), and Article 12, paragraph 1 (a), of the Convention, Parties provided information on their national inventory of anthropogenic emissions by sources and removal by sinks of GHGs not controlled by the Montreal Protocol.

33. All Parties estimated, at least for one year, emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), with the exception of four Parties which did not report on one or more GHGs. Twelve Parties (10 per cent) reported for 1990, and 94 Parties (77 per cent) for 1994, and the remaining Parties (13 per cent) reported for various years. A total of 107 Parties (88 per cent) provided emission estimates for some or all GHG precursors.³ Fifteen Parties (12 per cent) did not provide estimates of these gases. Eighteen Parties (15 per cent) provided estimates of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and/or sulphur hexafluoride (SF₆). Sixty-four Parties (52 per cent) reported emission estimates of sulphur dioxide (SO₂).

34. As 1994 is the year for which national GHG inventory data are most commonly reported by Parties, this compilation and synthesis report summarizes inventory data in terms of aggregate emissions and removals provided for 1994 or the closest year reported. When needed, estimates provided by Parties have been converted into CO₂ equivalent estimates using 1995 Intergovernmental Panel on Climate Change (IPCC) global warming potentials (GWPs) in order to facilitate comparison of inventory results. Such a presentation shows the relative contributions of the different GHGs and the different sectors to a Party's total GHG emissions.

35. In terms of aggregate total GHG emissions, expressed as CO₂ equivalent, excluding the land-use change and forestry (LUCF) sector, CO₂ was the primary GHG for more than half of the Parties (55 per cent). For one third of them (33 per cent), CH₄ was the most important contributor, and for 14 Parties (12 per cent) N₂O was the highest contributor.

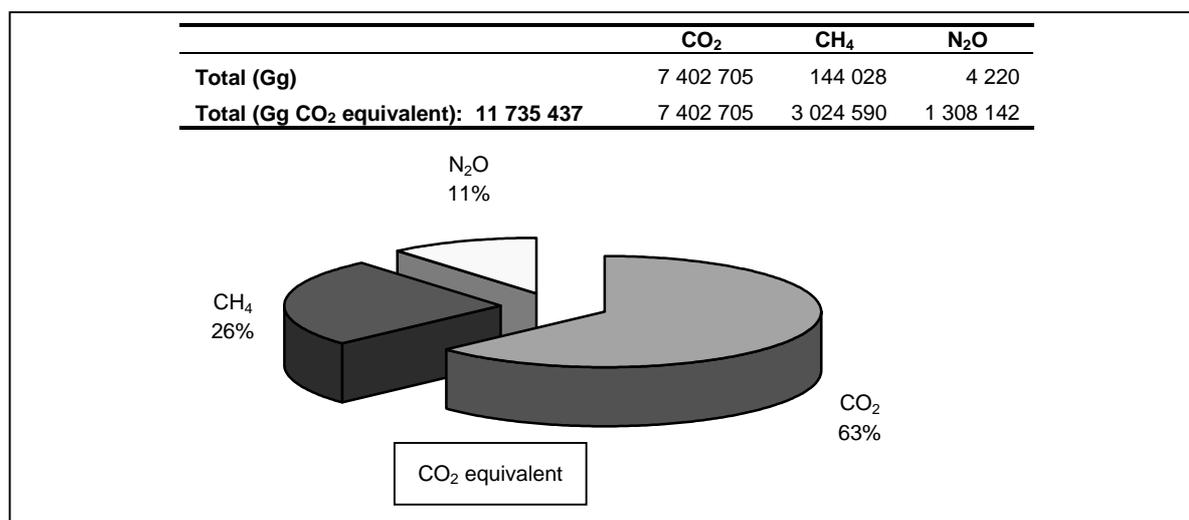
36. GHG emissions, excluding the LUCF sector, reported by 122 non-Annex I Parties for the year 1994 or the closest year reported, totalled 11.7 billion tonnes⁴ of CO₂ equivalent (figure 1). CO₂ is the primary gas emitted, with a total of 7.4 billion tonnes (63 per cent), followed by CH₄, with 3 billion tonnes (26 per cent), and N₂O with 1.3 billion tonnes (11 per cent).

37. The level of emissions varied widely among reporting Parties. Aggregate GHG emissions expressed in CO₂ equivalent, excluding LUCF, range from 4.7 to 4,057,306 Gg (a scale from 1 to 863,257). Nineteen Parties reported emissions lower than 1 million tonnes CO₂ equivalent; in contrast, 22 Parties reported emissions higher than 100 million tonnes CO₂ equivalent.

³ Precursors are atmospheric compounds which themselves are not GHG or aerosols but which have an effect on GHG or aerosol concentrations by taking part in physical or chemical processes regulating their production or destruction rates.

⁴ One billion tonnes equals to 10⁹ tonnes or 10³ Tg (Teragrams) or 10⁶ Gg (Gigagrams).

Figure 1. Total greenhouse gas emissions, excluding LUCF, for the year 1994 or the closest year reported



38. There are differences in the regional distribution of the aggregate GHG emissions resulting mainly from the national circumstances prevailing within each the region. For the Africa region, the majority of Parties (56 per cent) reported CH₄ as being the highest contributor; for the three remaining regions,⁵ CO₂ is the major contributor. The Asia and the Pacific region has the highest aggregate GHG emissions (7.9 billion tonnes CO₂ equivalent), followed by Latin America and the Caribbean region (2 billion tonnes CO₂ equivalent), Africa (1.6 billion tonnes CO₂ equivalent), and Other (0.1 billion tonnes CO₂ equivalent).

39. The energy sector was the largest source of GHG emissions for 70 Parties, whereas for 45 Parties the agriculture sector was the largest and for six the waste sector was the largest. Agriculture was the second largest emitter for most Parties, followed by the industrial processes sector, and then the waste sector. Removals by LUCF in most Parties offset GHG emissions from this same sector.

40. The LUCF sector is a net GHG sink for the Africa region, the Asia and the Pacific region, and the Other⁶ region. For the Latin America and the Caribbean region, LUCF is reported to be a net source of emissions. Although Parties report high uncertainty in the LUCF sector data, in the cross-regional aggregate there appears to be only a small difference (1.7 per cent) between the total aggregated emissions without LUCF (11.7 billion tonnes CO₂ equivalent) and with LUCF (11.9 billion tonnes CO₂ equivalent).

41. The per capita emissions (expressed in tonnes CO₂ equivalent, excluding LUCF) average 2.8 tonnes for the 122 non-Annex I Parties. The Africa region has the lowest average per capita emission with 2.4 tonnes; figures for the Asia and the Pacific region and the Latin America and the Caribbean region are 2.6 and 4.6 tonnes, respectively; and the Other region has the highest average per capita emission at 5.1 tonnes.

⁵ The four regions considered are: Africa, Asia and the Pacific, Latin America and the Caribbean, and "Other".

⁶ The "Other" region includes Albania, Armenia, Azerbaijan, Georgia, Malta, Republic of Moldova, and The former Yugoslav Republic of Macedonia.

V. Measures contributing to addressing climate change

42. A wide range of measures were reported in the initial national communications. Most Parties indicated that the principles of sustainable development were used to guide the assessment of options for abating the increase of GHG emissions and enhancing sinks. Therefore choice of measures was influenced by key national circumstances relating to population, natural resource endowment, geography, and political and economic structures as well as national priorities such as poverty alleviation, and provision of access to basic facilities and health issues, as well as financial and technological considerations.

43. The scope and level of detail of reports varied depending on national circumstances and how Parties decided to implement decision 10/CP.2. The majority of measures that were reported in the initial national communications related to the energy, agriculture, LUCF, and waste management sectors. In many cases, when the measures were identified, their status of implementation was not clear. Many Parties indicated that assessments of their measures were at an early stage and that the development of more detailed recommendations would require consultation with, and input from, stakeholders in the public and private sectors, as well as the development of appropriate policy and legal measures. The assessment of measures also varied across sectors and across Parties.

44. In assessing and identifying the measures and options for abating and sequestering GHGs, some Parties used expert judgement, and others applied computer-aided tools. In most cases when Parties used expert judgement, they based their assessments on the information in their GHG inventories, economic growth patterns and national sustainable development plans. Furthermore, Parties mentioned that they would select approaches based on a holistic evaluation of the options, taking into account life cycle assessments and the impact of implementing these options.

45. In the energy sector, the common tools used for analysis included Long-range Energy Alternative Planning (LEAP) system, the Energy and Power Evaluation Program (ENPEP), the Market Allocation Macro-economic (MARKAL) model, the Services, Transport, Industry, and Residential Energy (STAIR) model, energy technology optimization (ETO), the Modèle de demande en energie pour l'Europe – Sud (MEDEE-S), the Energy Flow and Optimization Model – Environment (EFOM-ENV), the Wien Automatic System Planning (WASP) package, and the Greenhouse Gas Costing Model (GACMO).

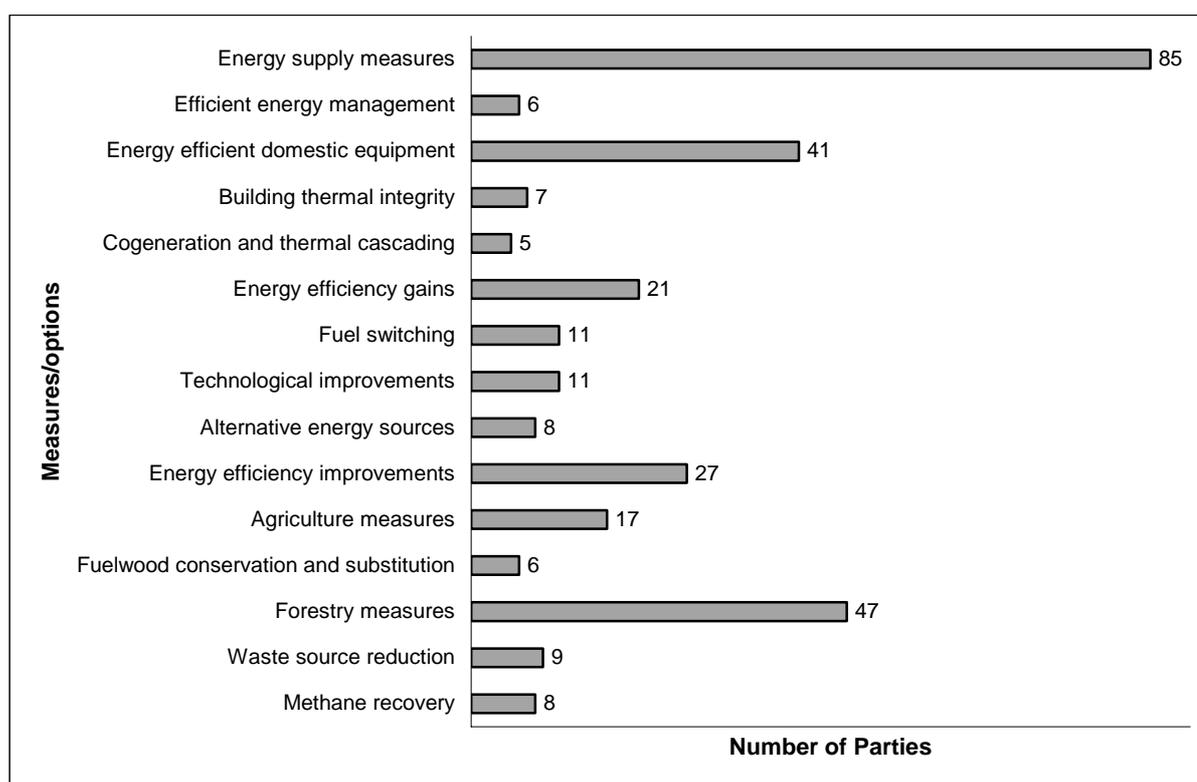
46. Several Parties (e.g. Argentina, Bolivia, Ghana, Honduras, Republic of Moldova, Turkmenistan) described the methodological aspects of the assessment of measures in the waste and LUCF sectors. When this was done, some Parties used linear regression tools, and others reported the use of methodologies that reflected the *1995 IPCC Guidelines for National Greenhouse Gas Inventories* on source categories.

47. Some Parties (e.g. Botswana, Ethiopia, Nicaragua, Saint Lucia, Sudan, Tunisia) reported on methods used to project the level of future emissions using business-as-usual and one or two abatement or sequestration scenarios. For the energy sector, the common variables used to develop scenarios were population growth, demand, and GDP. In some instances emission projections were made for various years.

48. Following the importance of the energy sector, 85 Parties identified measures in the energy sector to abate GHG emissions (see figure 2). Roughly half of the reporting Parties also identified measures to limit emissions and enhance removals by sinks in the LUCF sector. About one third of reporting Parties also reported on measures to abate GHG emissions in the agriculture and waste sectors. Figure 2 indicates numbers of Parties that reported measures in the various sectors.

49. Measures on energy supply included energy efficiency and conservation, increasing transformation efficiency, modernization of thermoelectric utilities, fuel switching, electricity imports, reduction of losses in transmission and distribution, development of plans to promote rural electrification and use of renewable energy sources. On the demand side, Parties identified a variety of different types of measures, ranging from regulatory to educational and promotion of information, in the transport, residential, commercial and industrial subsectors.

Figure 2. Number of Parties that reported measures in the various sectors



50. More than a half of the Parties stressed the importance of the development and promotion of renewable energy sources. For many Parties the most important renewable option is the extension of their hydropower programmes, mainly through additional small-scale hydro projects. Parties are also considering other forms of renewable energy, such as solar, geothermal, wind, biofuels and related technologies. A few Parties with suitable soils and climatic conditions for growing sugar cane are considering further investment in bagasse production (e.g Brazil, Cuba, Mauritius). In Brazil, ethanol has proven to be a reliable fuel for cars. It has a higher octane number than gasoline and contains no sulphur, and does not damage catalytic converters.

51. Many Parties, including Brazil, China, Colombia and Costa Rica, reported on the exploitation of renewable energy sources. In Costa Rica, 92 per cent of power needs are generated by renewable energy sources, where geothermal plants generate 990 MW and wind potential 600 MW of installed capacity. Colombia has hydropower potential amounting to 25,000 MW and potential from other renewables amounting to 1,200 MW. In 2000, 88 per cent of Brazil's electricity was generated from hydropower. Brazil has also constructed 205 small hydropower stations generating 865 MW of power and 40 other stations are being constructed to generate an additional 504.9 MW. Eighty-two others have been approved by government and, if built, will generate 1,323 MW in the medium-term. By 2000, China had constructed 40,000 rural hydropower stations with an installed capacity of 24.8 GW and was generating

about 80 million MWh of electricity per year. Utilization of renewable energy in China was reported to have reduced the amount of coal burned by more than 33 million tonnes.

52. Nearly two thirds of reporting Parties identified measures in the transport subsector. Parties' attention to this subsector follows from the fact that transport is often one of the fastest growing sources of GHGs, especially in large urban areas where it is affecting urban air quality, and creating noise and congestion problems. As a result of the subsector's direct influence on human health and well-being, measures that address transport emissions are often desirable from an environmental sustainability perspective, and also lead to lower GHG emissions. Reported measures target both new and improved technologies, such as introduction of electric or compressed natural gas vehicles, encouragement of early adoption of hybrid vehicles, introduction of vehicle emission standards, and passenger and freight vehicle efficiency standards, as well as measures focused on mode switching. Other measures include a reduction in the use of private vehicles through car pooling, improvement of the public transport system, including the development of road transportation master plans, adoption of legal measures to limit the importation of used and/or reconditioned vehicles, and improvement of road infrastructure, as well as modernization of locomotives switching from diesel to electric traction on railways, and using river transport systems where possible.

53. Although the level of industrialization is still low in most non-Annex I Parties, it is expected to grow. Therefore GHG emissions can be expected to increase from this subsector. Some Parties identified plans to modernize industrial processes and equipment through the introduction of improvements in cement and steel production to ensure that these processes are ecologically and environmentally friendly. Other Parties have developed policies for cleaner industrial production including through setting stringent energy intensity targets and energy conservation plans for different branches of industry. China, for example, has implemented a number of incentive policies in support of energy conservation projects, including interest payments rebates, differential interest rates, revoking of import taxes, reduction of income tax of enterprises and accelerated depreciation. Since 1990, the Government of China has closed down a number of large enterprises that were using antiquated technologies and/or were highly inefficient consumers of energy and materials.

54. More than half of the Parties identified several measures in the residential and commercial subsectors. The introduction of thermo-insulation of households, efficient refrigerators, efficient lighting, thermostats for electric boilers, prepaid meters for household consumers, solar water heating systems in households, improved air conditioning systems, implementation of demand-side management programmes, promotion of fuel switching, and use of renewable energy were some of the options.

VI. Research and systematic observation

55. Most Parties provided a chapter with a general description of steps taken on research and systematic observation whereas others covered the subject under other sections of the national communications. Parties presented a variety of research projects and systematic observation initiatives relating to climate change that are currently ongoing or under development. These activities serve to fill gaps in the knowledge required by Parties to improve the understanding of the possible impacts of climate change and to prepare them for developing sound climate change strategies. Parties also presented the institutional setting in which national research is conducted as well as their collaboration with international and regional bodies.

56. Some Parties that reported on research and systematic observation described research activities in a summary form, whereas others provided detailed results of research studies and national research initiatives in climatic characteristics and climate variability. Notably, Parties presented information on the results of studies on climate change impacts and adaptation, including through the application of climate modelling and prediction. Others reported that they are implementing national and regional

databases on meteorology and environment. All reporting Parties also described their programmes on national networks of observation stations relating to systematic observation. These included meteorological, atmospheric, oceanographic and terrestrial observations of the climate system.

57. Most Parties addressed domestic and international research activities and identified priority areas for national climate change research. Several parties reported that they have special national research plans and long-term strategies in different areas of climate change research. Many Parties reported that they have special national research plans but indicated that many research programmes on other environmental and energy-related issues are conducted in the context of international or regional initiatives.

58. Some Parties highlighted the need to enhance research on agriculture practices and species resistant to climate change and to promote carbon monitoring in areas of forestry management and livestock. Most Parties recommended further research on the impacts of climate change on agriculture and forestry, and studies on the technical and economic feasibility of desalination of sea water and underground aquifers, studies on the effect of temperature increase on health, and impacts on indigenous vegetation and animal diversity, on fisheries, health and malaria as well as an evaluation of drought resistant, high-value crops.

59. Notable studies on glaciology were also reported by several Parties. Brazil and South Africa cited work done under the umbrella of the Antarctica Treaty for the development of scientific research on the climate as important for acquiring a greater understanding of climate change.

60. In most Parties, research was carried out by government ministries, government-funded research institutions, universities and research councils. Some Parties indicated that special funds have been established for climate change research, but most Parties noted that their limited national budgets, inadequate financing, among other constraints to research activities, such as technical support and limited human capacity, have resulted in a depletion of stocks of instruments and equipment as well as a restriction in the expansion of existing networks to increase their coverage nationally.

61. Many Parties, especially the large ones, reported that they are cooperating in scientific research and systematic observation in order to clarify, reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitudes and trends in climate change over time. Teams of national researchers from several Parties are participating in international effort on global observing systems relating to climate change through collaboration and cooperation with regional and international organizations. These programmes include the Global Climate Observing System (GCOS) and the Global Ocean Observation System (GOOS). Several Parties mentioned technical cooperation with neighbouring countries (Brazil and Argentina, China and India, South Africa and Botswana).

62. Several Parties noted that the results of their research contributed to work by the IPCC and that they would continue to take an active part in the relevant activities of the IPCC. It was also noted that involvement in the IPCC helps to gain a better understanding of the current situation and future prospects of climate change.

VII. Climate change impacts, adaptation measures and response strategies

63. All Parties followed the UNFCCC guidelines for reporting on impacts, vulnerability and adaptation. Although the information centred on Parties' current and future vulnerability and adaptation options, measures and strategies, information was also provided on the methods and approaches used in vulnerability and adaptation assessments, limitations of methods and tools, problems and difficulties encountered, sectors studied, methods for analysing and evaluating adaptation needs and priorities for financial and technical support, and institutional arrangements and networking.

64. The scope and level of detail of reporting varied considerably among Parties. Almost all Parties provided information on their needs and concerns relating to assessment of climate change impacts, vulnerability and adaptation, while noting that they regard climate change impacts, vulnerability and adaptation as a critical sustainable development issue.
65. Most of the reporting Parties used both internationally developed methodologies and national models, ranging from the use of sophisticated computer models to qualitative assessments based on expert judgement and literature review. Additionally, many Parties applied statistical analysis and spatial/temporal analogues to develop climate change scenarios for various time horizons up to 2100, which they used to infer relationships between mean climate change and extreme events.
66. Parties used a wide range of sea-level-rise scenarios for different time horizons up to the year 2100. They carried out sensitivity analyses by projecting high- and low-emission scenarios on future sea-level changes and predicted impacts on coastal zones and resources. Parties also used biophysical and process-based models to simulate impacts on agriculture, water resources, coastal zones and marine ecosystems, forests and terrestrial ecosystems, human health, fisheries, settlements, energy and tourism.
67. Parties highlighted the limitations of using general circulation models (GCMs) for developing regional climate change scenarios, due in large part to the large spatial scale and low resolution of the GCM output. Many Parties did not clearly indicate the methods they used in assessing and analysing adaptation options, measures and strategies. Most of the adaptation options were identified using the *IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptation* to evaluate and determine the cost of specific adaptation strategies and measures.
68. Most Parties emphasized that they are already experiencing stresses from climate and climate-related events and phenomena that could be exacerbated by future climate change, which makes them highly vulnerable. Small island developing States, and countries with long coastlines and low-lying areas pointed out their experiences with severe floods and drought, adverse effects from changes in the ENSO phenomenon, tropical storms and changes in their patterns, salt water intrusion, storm surges, coral reef damage, and changes in migratory patterns of important fish. Some countries stated that they are concerned about long-term sustainability of their arid/marginal regions.
69. Most Parties presented a list of possible adaptation options without evaluating, prioritizing and/or costing them whereas some Parties used statistical methods and screening matrices to assess selected options. Information provided by Parties on current and future key vulnerabilities was dependent on the relative importance to their economy. The key vulnerabilities included sectors/areas, such as agriculture and food security, water resources, coastal zones and marine ecosystems, terrestrial ecosystems (forests, rangelands, etc.), human health and human settlements, fisheries, and others such as biodiversity, infrastructure, coral reefs, tourism and energy.
70. Some countries reported on the fertilization effect of increased atmospheric concentration of CO₂. Small island developing States reported on possible agricultural losses and devastating effect on coastal communities and infrastructure as a consequence of the sea-level rise. Many Parties stated that they already experience severe water supply problems caused by a rapid increase in population, growing demands from agriculture and industry, expanding urbanization, unabated pollution of water bodies and the exacerbation of these by the effects of climatic variability and extreme events.
71. Parties reported information on the likely incidence of diseases such as malaria, cholera and dengue fever, and the potential for an increase in cardiovascular and intestinal diseases, influenza, yellow fever and general morbidity, but they also mentioned the lack of data on and understanding of the interactions between health conditions and climate. Therefore much of the information presented on climate change impacts on human health was based on qualitative assessments, although a few Parties

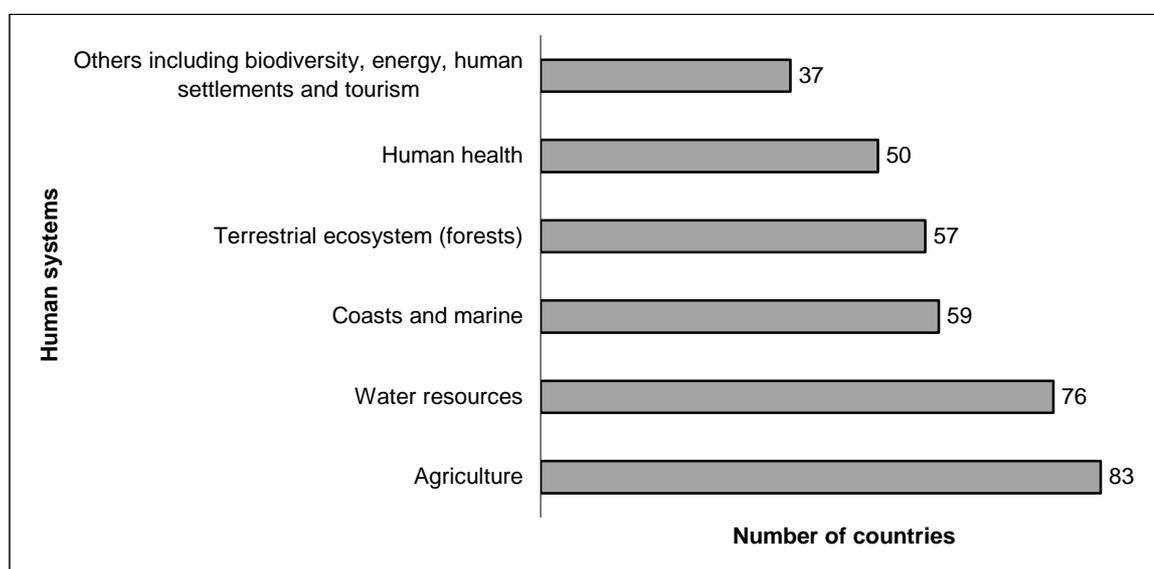
used statistical correlation to infer the relationship between climate characteristics, population data and incidence of diseases such as heat stress, cramps, dehydration, rashes, vascular and renal disorders, viral conjunctivitis and influenza.

72. Most countries evaluated the impacts of projected climate change on their forests and rangelands, in terms of changes in biomass, species composition and vegetation types. Impacts were found to be negative in general. Others examined the possible climate change impacts on fisheries as a part of their vulnerability and adaptation assessments. Some Parties provided information on the vulnerability of tourism, infrastructure, energy systems and biodiversity, which would be affected by increased frequency and intensity of storms and hurricanes. Figure 3 presents the percentage of Parties reporting on their key sectoral vulnerabilities.

73. Some of the adaptation options considered include introduction of water policy reforms focusing on water conservation, inter-basin water transfer, desalination, flood management and construction of dams, development of drought-tolerant crops, improvement of early warning systems, enhancement of erosion control, training and assisting farmers, integration of coastal zone management, improvement of health care systems, enhancement of forest management, protection of tourism infrastructure, strengthening of environmental legislation and promotion of conservation.

74. Many Parties also reported on plans to incorporate or integrate climate change concerns into their planning processes as a strategy for adaptation to climate change over the long term. Some Parties have included adaptation measures in their national action plans and/or national environmental action plans as a first step towards implementation of adaptation, and others have reported that some legislative changes would help facilitate incorporation of climate change adaptation in the future.

Figure 3. Percentage of Parties reporting on key vulnerabilities by sector



75. Some Parties engaged and involved relevant stakeholders, including policy makers, in the vulnerability and adaptation assessment process, mainly through meetings, consultations and workshops.

76. Most Parties provided information on possible adaptation measures and strategies in key sectors. Countries in the Africa and the Latin America and the Caribbean regions consider adaptation in agriculture and water resources sectors as top priority, whereas in Asia adaptation in agriculture, forests

and terrestrial ecosystems are regarded as high priority. In small island developing States, adaptation in water resources and coastal zones, including sea-level rise, was considered as top priority.

77. A number of anticipatory and reactive adaptation measures have been identified in key sectors. Most of these measures relate to crop management, land management and soil and water conservation in agriculture and food security; supply-side and demand-side management of water resources; conservation and management of forests and other terrestrial ecosystems; land-use planning and zoning and integrated coastal zone management; and improvements in living standards, surveillance, monitoring and early warning systems for outbreaks of disease vectors that threaten human health.

VIII. Education, training and public awareness

78. For most Parties, the preparation of national communications and climate-related projects supported by the Global Environment Facility (GEF) and other bilateral and multilateral organizations provides the impetus in launching public education and information campaigns. Although substantial progress has been achieved in raising public awareness, this should be complemented by education and training programmes. Non-Annex I Parties share a common concern about the lack of such education and training programmes at the national and regional level.

79. All the initial national communications contained information relating to education, training and public awareness. About half of the reporting Parties dedicated a separate chapter or section to them. Although other Parties did not have a separate chapter, they included information on education and public awareness activities in other chapters of their national communications.

80. The information varies widely, with only half of the reporting Parties providing details and examples of their programmes and activities. Other Parties provide general and, in some instances, sparse information about their programmes and activities. There are also differences in the information provided in terms of type, scope and goal of activities, due to the country-driven nature of the activities and the differing national circumstances. Differences are reported in areas such as target groups (e.g. civil society, academia, youths and students, women, government officials), availability of centres on environmental education and/or climate change and capacity to design and implement plans and strategies.

81. Most Parties reported that education, training and public awareness is important in implementing climate change projects and programmes and is an important component of national climate change strategies. All reporting Parties provided information on the need to enhance national programmes for formal and/or non-formal education, training and public awareness in all areas of climate change. Most Parties emphasized the need to raise awareness and knowledge levels on climate change issues in all areas of society, including through the media, educational institutions (e.g. schools and universities) and other research institutions, as well as through both public and private sector means, in order for a wide range of actors to play an important role in advocating policies and/or implementing climate change measures.

82. Parties reported that they have initiated programmes to raise the awareness of the different target groups about climate change using their own resources and with support of bilateral, multilateral and other international organizations. In spite of these initiatives, there are still areas that need further attention. Some of the activities that Parties mentioned as needing further assistance include development of education and public awareness materials, integration of climate change into national educational curricula, strengthening/building of institutions and translation of climate change materials into language accessible to the lay public and into local languages.

83. Although the specific objectives and priorities for public education differ according to the needs of the target groups, the overall goal is still to ensure that every person understands the problems associated with climate change and assumes some responsibility to address these problems. Recognizing that climate change affects the lives of every individual, Parties reported activities that targeted the following stakeholders: children, youth, students, teachers, researchers, policy makers, parliamentarians, local government officials, NGOs, community-based organizations, media, the private sector and industry. Other Parties emphasized the need for more focused education campaigns aimed at specific, vulnerable stakeholders or sectors such as women, farmers and fishermen.

IX. Needs and constraints

84. Most Parties noted that major achievements have been made at the national level in addressing climate change issues. However, they underlined that in order to strengthen their efforts in meeting their reporting commitments under the UNFCCC, there are financial, technical, institutional and capacity-building issues needs that should be addressed.

85. Many Parties mentioned the need for better institutional arrangements to facilitate data collection and analysis and others indicated the need for further capacity-building and human resource development in the context of the preparation of national communications. Some Parties identified improved coordination and cooperation between relevant institutions and agencies as key factors in facilitating the integration of climate change concerns into policy-making processes. Parties also indicated the need to improve the capabilities of national climate change coordinators and national institutions to manage and coordinate climate change programmes.

A. Inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases

86. Most Parties indicated that their technical and institutional capacities were inadequate for meeting their reporting obligations under the Convention regarding their national GHG inventories.

87. Most Parties identified the lack of activity data as a major constraint for the estimation of emissions of some source categories in at least one sector, which was usually energy or LUCF, and to a lesser extent agriculture, industrial processes and waste. Regarding energy use, most Parties reported broadly or specifically on the lack of activity data on household biomass consumption, vehicles and equipment efficiency in the transport and industrial subsectors, and international bunker fuels. Some Parties reported difficulties in obtaining activity data for the time series needed for the LUCF sector, as requested by the IPCC methodology. National data on land use and forest cover were often outdated or not in a suitable format.

88. Most Parties found that the IPCC default emission factors for several source categories were not applicable to their national circumstances and expressed the need for developing appropriate sectoral emission factors to improve the quality of inventory data. Parties emphasized, for example, limitations relating to the applicability of the IPCC non-CO₂ emission factors and the need to study the composition of local fuel types, and for the development of specific emission factors for fugitive gases from oil fields, agricultural soils, and processes relating to the production of cement.

89. Most Parties underlined the need for financial and technological support for the continuous collection and archiving of inventory data, along with the establishment and maintenance of stable national institutions, inventory teams and a reliable and effective GHG inventory database system. Parties also noted that the improvement of infrastructure coupled with more efficient equipment and better facilities would permit the creation and/or strengthening of statistical systems for managing basic GHG emissions information on an ongoing basis. Some Parties requested assistance to expand the scope

of their original inventories by including other gases. Some stressed the need to develop a comprehensive energy balance to help compute GHG emissions in the energy sector on a continuous basis, and a few pointed out the need to link the energy balance with GHG emissions methodologies such that data changes in the energy balance are automatically reflected in the GHG emissions values. Some Parties stressed the lack of data on household consumption of biomass fuels, and requested funds to conduct and update, on a more sustainable basis, studies to gather consumption data for conventional and non-conventional fuels

90. Financial and technical assistance is also needed for improving the quality (availability, accuracy and reliability) of sectoral data, particularly in the LUCF sector. For many Parties, data are either lacking or highly uncertain. Specific technical needs relate to establishing systematic mechanisms to collect data, undertaking field studies and validation of emission factors, carrying out further surveys in order to reduce uncertainties in activity data, improving the use of methodologies to determine forest area, improving institutional capacity to collect forest data, and improving and expanding carbon sequestration studies.

91. Parties also expressed the need to improve the availability and reliability of data through active cooperation with relevant government departments and agencies, industry, NGOs and other institutions that provide, collect and maintain relevant data. Access to adequate training was also considered to be an important element in enhancing local technical capacity and expertise in data collection, management and dissemination.

92. Parties also referred to the need to strengthen the capacity of institutions involved in the preparation of the GHG inventory, including the training of personnel. Several Parties expressed a need to train personnel in the compilation and analysis of GHG inventories, and to keep abreast of refinements to the IPCC methodologies.

B. Measures contributing to addressing climate change

93. Parties pointed out that many of the measures and options have not been comprehensively assessed and that further assistance will be needed to conduct detailed cost-benefit analysis of these options, and to identify the relevant entities and stakeholders that may be affected by the measures. The following are examples of the areas identified by Parties in their national communications for which they need assistance to carry out a more comprehensive assessment of abatement measures: more trained personnel for the analysis of demand-side management measures, plans and programme; general education to improve public awareness and acceptance of new technologies and resource conservation opportunities; capital to invest in new technologies and opportunities to mobilize both private and public sector investment in new and renewable energy technologies, such as wind, solar, biomass, geothermal, and mini-hydropower; increased access to affordable and efficient appliances; and the preparation of more studies on how to integrate climate change abatement into development objectives, especially in the energy sector.

C. Climate change impacts, adaptation measures and response strategies

94. Serious constraints to the assessment of vulnerability and adaptation in non-Annex I Parties were the lack of data, quality control, archiving, retrieval, preparation and analysis of data to meet the demands of the methodologies for assessments, as well as Parties' inability to conduct the type of assessments that would generate results reliable enough to be incorporated into the national planning processes. Much of the data required as input to impact models and assessments were not present (uncollected), inaccessible or inappropriate. Common methodological problems in impact assessment included lack or inadequacy of local, specific environmental and socio-economic data and

methodologies; and lack of methodologies for integrated climate and socio-economic assessments. Other limitations included the unsuitability of methods and tools.

95. Many Parties noted the following constraints: the lack of appropriate institutions and infrastructure to conduct systematic data collection; poor coordination within and/or between government departments and agencies; and the absence of universities and/or research centres in smaller, poorer countries; and other cases where existing universities were not engaged in climate change impact, and vulnerability and adaptation assessment work. They also noted that many of the existing institutions lack capacity and resources to conduct integrated assessments to evaluate costs and priorities of adaptation measures and strategies. In some cases, the participation and involvement of technical teams were hampered by lack of coordination and lack of clarity over roles and responsibilities.

96. Some Parties emphasized their needs for adaptation research, particularly to address key vulnerabilities, such as water resources management, including use of groundwater resources and development of drought-tolerant and disease-resistant crops and livestock. Other Parties stressed the importance of research in understanding climate change impacts and facilitating the protection of forests, reforestation, and conservation of coral reefs.

97. Many Parties expressed the need for more work to be carried out on integrated climate change and socio-economic assessments, and identification of adaptation options and their associated costs. Some Parties considered that, where possible, vulnerability and adaptation studies should be conducted at a regional or subregional level, particularly where a number of countries share natural resources such as coastlines and water resources within major catchments or river systems. Parties also highlighted the limitations of using GCMs for developing regional climate change scenarios, mostly because of the large spatial scale and low resolution of the GCM output and the need for assistance in constructing regional climate change scenarios.

D. Research and systematic observation

98. Most Parties reported on their needs relating to climate change research and systematic observation, in particular, their need to develop, extend and/or modernize national climate observation systems. Parties highlighted their limited national budgets, inadequate financing, technical support and limited human capacity for research and observation. Some Parties also reported a problem of depletion of stocks of instruments and equipment as well as a restriction in the expansion of existing networks for systematic observation.

E. Education, training and public awareness

99. All reporting Parties provided information on the need to enhance national programmes for formal and non-formal education, training and public awareness in all areas of climate change. Most Parties emphasized the need to raise awareness and knowledge in climate change in all areas of society, including schools, universities and other research institutions, and the media in order for all stakeholders to play an important role in advocating policies and/or implementing climate change measures.

100. Parties reported that they have initiated programmes to raise the awareness of the different sectors about climate change using their own resources and with support of bilateral, multilateral and other international organizations. In spite of these initiatives, there are still areas that need further attention. Parties mentioned the need for further assistance for developing more education and public awareness materials, integrating climate change into the curricula, strengthening/building of institutions, and translating climate change materials into local languages.

Annex

Status of submission of national communications from non-Annex I Parties

Submitted initial national communications

Party <i>(least developed countries in italic)</i>	Date of submission	Party <i>(least developed countries in italic)</i>	Date of submission
1. Albania	13 September 2002	55. Iran (Islamic Republic of)	31 March 2003
2. Algeria	30 April 2001	56. Israel	18 November 2000
3. Antigua and Barbuda	10 September 2001	57. Jamaica	21 November 2000
4. Argentina	25 July 1997	58. Jordan	6 March 1997
5. Armenia	4 November 1998	59. Kazakhstan	5 November 1998
6. Azerbaijan	23 May 2000	60. Kenya	22 October 2002
7. Bahamas	5 November 2001	61. <i>Kiribati</i>	30 October 1999
8. Bahrain	20 April 2005	62. Kyrgyzstan	31 March 2003
9. <i>Bangladesh</i>	12 November 2002	63. <i>Lao People's Democratic Republic</i>	2 November 2000
10. Barbados	30 October 2001	64. Lebanon	2 November 1999
11. Belize	16 September 2002	65. <i>Lesotho</i>	17 April 2000
12. <i>Benin</i>	21 October 2002	66. <i>Madagascar</i>	22 February 2004
13. <i>Bhutan</i>	13 November 2000	67. <i>Malawi</i>	2 December 2003
14. Bolivia	16 November 2000	68. Malaysia	22 August 2000
15. Botswana	22 October 2001	69. <i>Maldives</i>	5 November 2001
16. Brazil	10 December 2004	70. <i>Mali</i>	13 November 2000
17. <i>Burkina Faso</i>	16 May 2002	71. Malta	16 June 2004
18. <i>Burundi</i>	23 November 2001	72. Marshall Islands	24 November 2000
19. <i>Cambodia</i>	8 October 2002	73. <i>Mauritania</i>	30 July 2002
20. Cameroon	31 January 2005	74. Mauritius	28 May 1999
21. <i>Cape Verde</i>	13 November 2000	75. Mexico	9 December 1997
22. <i>Central African Republic</i>	10 June 2003	76. Micronesia (Federated States of)	4 December 1997
23. <i>Chad</i>	29 October 2001	77. Mongolia	1 November 2001
24. Chile	8 February 2000	78. Morocco	1 November 2001
25. China	10 December 2004	79. Namibia	7 October 2002
26. Colombia	18 December 2001	80. Nauru	30 October 1999
27. <i>Comoros</i>	5 April 2003	81. <i>Nepal</i>	1 September 2004
28. Congo	30 October 2001	82. Nicaragua	25 July 2001
29. Cook Islands	30 October 1999	83. <i>Niger</i>	13 November 2000
30. Costa Rica	18 November 2000	84. Nigeria	17 November 2003
31. Côte d'Ivoire	2 February 2001	85. Niue	2 October 2001
32. Cuba	28 September 2001	86. Pakistan	15 November 2003
33. Democratic People's Republic of Korea	7 May 2004	87. Palau	18 June 2003
34. <i>Democratic Republic of the Congo</i>	21 November 2000	88. Panama	20 July 2001
35. <i>Djibouti</i>	6 June 2002	89. Papua New Guinea	27 February 2002
36. Dominica	4 December 2001	90. Paraguay	10 April 2002
37. Dominican Republic	4 June 2003	91. Peru	21 August 2001
38. Ecuador	15 November 2000	92. Philippines	19 May 2000
39. Egypt	19 July 1999	93. Republic of Korea	12 February 1998
40. El Salvador	10 April 2000	94. Republic of Moldova	13 November 2000
41. <i>Eritrea</i>	16 September 2002	95. <i>Rwanda</i>	6 September 2005
42. <i>Ethiopia</i>	16 October 2001	96. Saint Kitts and Nevis	30 November 2001
43. Gabon	22 December 2004	97. Saint Lucia	30 November 2001
44. <i>Gambia</i>	6 October 2003	98. Saint Vincent and the Grenadines	21 November 2000
45. Georgia	10 August 1999	99. <i>Samoa</i>	30 October 1999
46. Ghana	2 May 2001	100. <i>São Tomé and Príncipe</i>	19 May 2005
47. Grenada	21 November 2000	101. <i>Senegal</i>	1 December 1997
48. Guatemala	1 February 2002	102. Seychelles	15 November 2000
49. <i>Guinea</i>	28 October 2002	103. Singapore	21 August 2000
50. Guyana	16 May 2002	104. <i>Solomon Islands</i>	29 September 2004
51. <i>Haiti</i>	3 January 2002	105. South Africa	11 December 2003
52. Honduras	15 November 2000	106. Sri Lanka	6 November 2000
53. India	22 June 2004	107. <i>Sudan</i>	7 June 2003
54. Indonesia	27 October 1999		

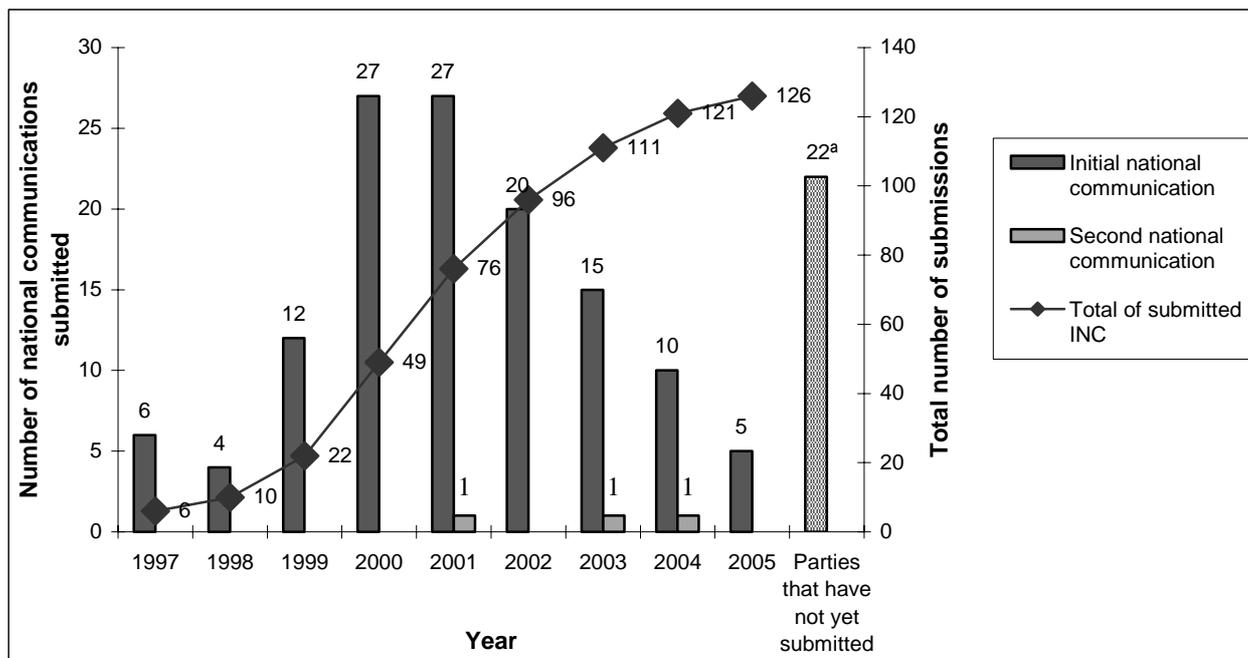
Party <i>(least developed countries in italic)</i>	Date of submission
108. Swaziland	21 May 2002
109. Tajikistan	8 October 2002
110. Thailand	13 November 2000
111. The former Yugoslav Republic of Macedonia	25 March 2003
112. <i>Togo</i>	20 December 2001
113. Tonga	21 July 2005
114. Trinidad and Tobago	30 November 2001
115. Tunisia	27 October 2001
116. Turkmenistan	11 November 2000
117. <i>Tuvalu</i>	30 October 1999
118. <i>Uganda</i>	26 October 2002
119. <i>United Republic of Tanzania</i>	4 July 2003
120. Uruguay	15 October 1997

Party <i>(least developed countries in italic)</i>	Date of submission
121. Uzbekistan	22 October 1999
122. <i>Vanuatu</i>	30 October 1999
123. Viet Nam	2 December 2003
124. <i>Yemen</i>	29 October 2001
125. <i>Zambia</i>	18 August 2004
126. Zimbabwe	25 May 1998

Submitted second national communications

Party	Date of submission
1. Mexico	23 July 2001
2. Republic of Korea	1 December 2003
3. Uruguay	11 May 2004

Figure 4. Submission of initial and second national communications by year



^a Afghanistan, Angola, Bosnia and Herzegovina, Cyprus, Equatorial Guinea, Fiji, Guinea-Bissau, Kuwait, Liberia, Libyan Arab Jamahiriya, Mozambique, Myanmar, Oman, Qatar, San Marino, Saudi Arabia, Serbia and Montenegro, Sierra Leone, Suriname, Syrian Arab Republic, United Arab Emirates and Venezuela.
