

Report of the Auditor-General

to Parliament on the status of climate change initiatives in South Africa

January 2010



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Contents

A.	Executive summary	1
B.	Process followed.....	4
	1. Background	4
	2. Objective and scope.....	4
	3. Approach.....	5
C.	General overview of climate change	6
D.	Status report on climate change initiatives	8
	4. Overarching initiatives	8
	5. Mitigation efforts in South Africa.....	16
	6. Adaptation efforts in South Africa.....	25
E.	Recommendations	28
F.	Appreciation	30
G.	Glossary	31
	Annexure A: Approach matrices	32

A. Executive summary

1. The key objective of this report is to convey the status of climate change initiatives in South Africa. This report is the result of an initiative by the Working Group on Environmental Auditing of the International Organisation of Supreme Audit Institutions (INTOSAI). Fourteen Supreme Audit Institutions (SAIs) that are national audit offices, including South Africa, agreed in June 2007 to participate in a joint project on climate change. The project included developed and developing countries.
2. Procedures performed did not constitute an audit and, as such, no assurance or audit opinion is expressed. The Auditor-General of South Africa (AGSA) also does not express an opinion on the adequacy and effectiveness of any initiatives taken by government to reduce the adverse impact of climate change.
3. During the compilation of this report, the following main areas were focused on:
 - Legislation, strategies, plans and targets
 - Implementation and results measurement
 - Coordination and governance
 - Specific policy instruments and Clean Development Mechanism (CDM) projects
 - Donor funding
4. The Constitution, the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Air Quality Act, 2004 (Act No. 39 of 2004) are among the legislation enacted by the South African government, aiming to protect and regulate the environment and to promote sustainable development.

5. South Africa ratified the United Nations Framework Convention on Climate Change (UNFCCC)¹ and acceded to the Kyoto Protocol², and as a party thereto is bound by all obligations under the Convention and Protocol. However, as a Non-Annex I (developing country³) party, South Africa is not legally bound to reach a quantified greenhouse gases emission target with regard to mitigation.
6. Various climate change strategies and plans have been developed, amongst others, to fulfil the country's obligations as per article 4 of the UNFCCC. The most recent documents include:
 - Long-term Mitigation Scenarios, 2007
 - National Climate Change Response Policy Framework, 2009
 - National Climate Change Summit Statement, March 2009.
7. With respect to implementation and results measurement, South Africa has done a substantial amount of work to meet its international commitments.
8. The potential impact of environmental change on key sectors and regions has also been assessed. The health sector, maize production, plant and animal biodiversity, water resources and rangelands were identified as areas of highest vulnerability and were addressed in the National Climate Change Response Strategy. The Department of Science and Technology is in the process of compiling the South African Climate Change Risk and Vulnerability Atlas⁴ which will be used as a planning tool for adaptation interventions at regional, national, provincial and municipal levels.

¹ The UNFCCC is an international environmental treaty emanating from the United Nations Conference on the Environment and Development, informally known as the Earth Summit, held in Rio de Janeiro from 3 to 14 June 1992. The treaty is aimed at stabilising greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

² The Kyoto Protocol is a protocol under the UNFCCC which establishes a legally binding commitment for the reduction of gases for Annex I (industrialised) countries, as well as general commitments for member countries. Currently 184 parties have ratified the protocol which was adopted for use as of 11 December 1997.

³ The UNFCCC divides countries into three main groups according to differing commitments: Annex I, Annex II and Non-Annex I. Most Non-Annex I parties are developing countries. The term "developed country" is broadly described as a country that has a high level of development. Countries not fitting the definition of a developed country are classified as "developing countries".

⁴ www.rvatlas.org.



9. A number of forums and working groups have also been established to govern climate change and to administer the national policy process. For example, the following committees have been established:
- National Environmental Advisory Forum
 - Inter-ministerial Committee on Climate Change
 - National Committee on Climate Change
 - Intergovernmental Committee on Climate Change
 - A directorate to deal with compliance matters, enforce environmental legislation and fight environmental crime.
10. The Department of Environmental Affairs (DEA) has also done work on specific emission reduction instruments and is developing a National Greenhouse Gases Information Management System. In addition, National Treasury worked on an environmental fiscal reform framework and has recently begun to put budgetary measures in place that encourage energy conservation and reduce the use of environmentally “unfriendly” technologies. South Africa has also registered 15 CDM projects aimed at reducing emissions.
11. As can be seen from the above, various initiatives were taken by the South African government to mitigate and adapt to the effects of climate change. However, the following areas for improvement were identified:
- The performance of climate change actions by all relevant role players should be monitored and evaluated vigorously. The performance targets should be measurable, attainable, relevant and time bound.
 - The effectiveness of oversight functions provided by government over the responsible agencies should be evaluated and reported on.
 - The turnaround times for registering CDM projects should be improved.
 - While climate change donor funding received is not controlled or managed centrally in South Africa, it remains a challenge to obtain donor funding due to competition in the international arena.

B. Process followed

1. Background

12. This report will be consolidated into a Joint Summary Report which will be released in the presence of all SAI Heads during the XX International Congress of Supreme Audit Institutions (INCOSAI) to be hosted by South Africa in November 2010.
13. The AGSA participated in this project due to the following:
 - AGSA is a member of INCOSAI and a member of the INTOSAI Working Group on Environmental Auditing
 - The XX INCOSAI will be hosted by South Africa in November 2010, and the Joint Summary Report will be released at the congress
 - Climate change corresponds with one of the themes of the XX INCOSAI, namely environmental auditing and sustainable development reporting.
14. The DEA has made the AGSA aware of the sensitivity of certain climate change research information, namely that 2009 was a crucial year in the international effort to address the climate change initiatives, culminating in the United Nations Framework Convention on Climate Change (UNFCCC) held in Copenhagen from 7 to 18 December 2009. The outcomes of the Copenhagen conference are not reflected in this report.

2. Objective and scope

15. The key objective of this report is to convey the status of climate change initiatives in South Africa. Since it is an extensive and complex subject, a high-level review was conducted at national level.
16. The focus areas were categorised according to the following main themes and sub-

themes:

Mitigation

- Strategies, plans and targets
- Implementation and results measurement
- Coordination and governance
- Specific policy instruments
- CDM projects
- Donor funding.

Adaptation

- Strategies, plans and targets
- Implementation and results measurement
- Coordination and governance
- Specific policy instruments
- Monitoring and forecasting impacts
- Donor funding.

3. Approach

17. The engagement was performed in accordance with ISRS 4400 applicable to agreed-upon procedure audit engagements.
18. The agreed-upon procedures were developed by the project committee of the INTOSAI Working Group on Environmental Auditing in the form of matrices which outline objectives and researchable questions. Objectives and questions are predetermined in order to keep the information comparative in the Joint Summary Report.
19. Procedures performed were then agreed upon with the DEA. It did not constitute an audit and, as such, no assurance or audit opinion is expressed. The AGSA also does not express an opinion on the adequacy and effectiveness of any initiatives taken by government to reduce the adverse impact of climate change.

20. The researchable questions were answered to the extent possible, bearing in mind that the participants are a mixture of developed and developing countries, where some of the countries have commitments (in terms of the Kyoto Protocol) and others not.
21. A steering committee was established between the AGSA and the DEA, with the Chief Director: Air quality management and climate change mitigation as chairperson. Consensus was reached on the factual correctness during a meeting held with the DEA management on 15 September 2009. Management comments received on 18 September 2009 and 16 November 2009 were incorporated in the report.

C. General overview of climate change

22. The South African Weather Service defines climate change as the natural cycle through which the earth and its atmosphere are going to accommodate the change in the amount of energy received from the sun. It further explains that the global climate system is driven by energy from the sun. Several gases in the atmosphere act to trap the energy from the sun, thus warming the earth. These are called *greenhouse gases* and the process is called the *greenhouse effect*. Human activities are causing greenhouse gas levels in the atmosphere to increase.
23. Mitigation entails all human interventions that reduce the sources or enhance the sinks of greenhouse gases.
24. Adaptation refers to the degree to which adjustments are made to practices, processes or structures of systems to protect against the damaging effects of changing climate extremes and also ways to cope with the gradual changes in background climate such as slow rates of warming that may ultimately require new behaviours and practices in human society.
25. According to the National Committee Change Response Policy (NCCRP), the

Intergovernmental Panel on Climate Change's⁵ (IPCC) Fourth Assessment Report provides the most recent and comprehensive estimate of the likelihood that human activities are causing the currently observed temperature and climate change. They concluded that:

- warming of the climate system is unequivocal, as is evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level.
 - most of the observed increase in globally averaged temperatures since the mid 20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.
26. The Initial National Communication reports that changes in the climate may have significant effects on various sectors of South African society and the economy. South Africa has an emissions-intensive economy, primarily due to its reliance on coal-based sources of power. According to the 2000 greenhouse gas data, South Africa is one of the top 20 emitters of greenhouse gases in the world.
27. The Initial National Communication also states that South Africa is a developing country and must recognise the need for the economy to grow sustainably and for the infrastructure base to be expanded in order to meet the needs of the population for economic growth, job creation and poverty eradication.
28. According to the NCCRS, the challenge for South Africa is to achieve the growth objective as well as to reduce greenhouse gas emissions. In addition, this challenge must now be met within a global context of the effects of the recession and declining growth.
29. The President commented in his State of the Nations Address in Parliament in June 2009, that South Africa, being a dry country, requires urgent action to mitigate adverse environmental changes and that continued effort is needed to improve energy efficiency and reliance on renewable energy.

⁵ *The Intergovernmental Panel of Climate Change is the leading body for the assessment of climate change, established by the United Nations Environment Programme and the World Meteorological Organisation to provide the world with a clear scientific view on the current state of climate change and its potential environmental and social economic consequences.*

D. Status report on climate change initiatives

30. This section provides an abridged version of the status of climate change initiatives in South Africa. The researchable questions and responding paragraphs are attached as annexure A.

4. Overarching initiatives

Legislation

31. There are numerous legislative papers in South Africa to protect and regulate the environment. The primary legislation is the Constitution which states that *everyone has the right to an environment that is not harmful to their health and well-being*. Second to the Constitution is the National Environmental Management Act (NEMA) which established the concepts of participatory, cooperative and developmental governance regarding environmental issues.
32. Following the release of NEMA, the DEA embarked on a Law Reform Programme to provide a consolidated legislative framework for environmental management in South Africa. The new suite of legislation, developed under NEMA, is aimed at promoting sustainable development and has wide-ranging implications for national, provincial and local spheres of government. The suite of legislation has moved away from general policy and broad legislation, like NEMA, towards more specialised legislation to address particular resource issues such as biodiversity and air quality.
33. The DEA indicated that the Air Quality Act includes direct and indirect references to “the Republic’s obligations in terms of international agreements” and contains provisions that may be used for greenhouse gas emission regulation. However, as legislation specifically designed to regulate air quality, the Air Quality Act can only be effectively used to regulate climate change mitigation measures. Furthermore, even in respect of mitigation, the Air Quality Act is limited to the provision of ways and means to reduce greenhouse gas emissions and does not provide for ways and

means of reducing atmospheric greenhouse gas concentrations through, for example, carbon sequestration.

Strategies and plans

34. The South African Country Study for Climate Change (SACSCC) was initiated in the late 1990s by South Africa's National Committee on Climate Change (NCCC), funded by the United States Agency for International Development as part of its international country study programme. According to the South African National Biodiversity Institute (SANBI), the study was the first which involved South African scientists from a wide range of disciplines in assessing the issue of climate change at the national and key sectoral levels.
35. Overall, the SACSCC consisted of three sections, namely:
 - Greenhouse gas inventory
 - Vulnerability and adaptation assessment
 - Mitigation options assessment.
36. The results of these studies formed one of the elements of South Africa's Initial National Communication to the UNFCCC. According to the DEA, quality control procedures were not relevant in the compilation of the SACSCC because the study was based on a scenario-building process and therefore the inputs were subjective. However, the guidelines and standards from the UNFCCC were used in the compilation of the Initial National Communication.
37. The detailed SACSCC was compiled on a sectoral basis. Using these results, together with information from the IPCC Third Assessment Report and other relevant documents, the DEA has developed a framework for the NCCRS.
38. The NCCRS was designed to address issues identified as priorities for dealing with climate change in South Africa. The NCCRS states that the national strategy must recognise international realities within the context of the present economic realities of the country and the inequitable distribution of global wealth, including the growing pressure for quantified commitments of some kind by developing countries, including South Africa. Thus the point of departure reflected in the NCCRS is the achievement

of national and sustainable development objectives, whilst simultaneously responding to climate change.

39. To strengthen the NCCRS, the following was agreed during the National Climate Change Conference held in October 2005:

- Climate change is a reality
- Climate change is one of the most significant threats to sustainable development across the globe
- The country must accelerate its national response as well as reinforce efforts in the international arena
- Efforts must be intensified to use the best available science to address adaptive and mitigation actions in a coordinated manner.

40. Government committed to some activities during the conference in 2005 which constituted the Midrand Plan of Action. The action plan serves as the foundation of the country's climate change programme.

Coordination and governance

41. The NCCRS affirms that since South Africa is a climatically sensitive region, the issue of climate variability and potential climate change is taken seriously at national level. The DEA has been designated as the lead agency for climate change response in South Africa as it is the custodian of environmental issues in South Africa.

42. According to the DEA, the role of the Air Quality and Climate Change Chief Directorate is to ensure that reasonable legislative and other measures are developed, implemented and maintained in such a way as to protect and defend the right of all to air and atmospheric quality that is not harmful to health and well-being.

43. The National Environmental Advisory Forum was established as a requirement of NEMA to advise the Minister of Water and Environmental Affairs on any matter concerning environmental management and governance, specifically the setting and achievement of objectives and priorities for environmental governance, and appropriate methods of monitoring compliance.

44. South Africa has also established the NCCC. The purpose of the NCCC is to advise and consult the Minister of Water and Environmental Affairs on matters relating to national responsibilities with respect to climate change, and in particular in relation to the UNFCCC and the Kyoto Protocol.
45. In order to facilitate operational and cooperative governance in the area of climate change, the Intergovernmental Committee on Climate Change (IGCCC) has been established to foster the exchange of information, consultation, agreement, assistance and support among the spheres of government with respect to climate change and government's response to climate change.
46. To this end, the IGCCC monitors and reports on progress made with the implementation of various climate change-related projects and initiatives that impact on, or require the active involvement of, more than one of the IGCCC members.
47. The IGCCC also advises on and coordinates matters relating to national responsibilities with respect to climate change, in particular in relation to the UNFCCC and the Kyoto Protocol.
48. The IGCCC is chaired by the DEA and consults on the formulation of the National Climate Change Strategy and Policy. The IGCCC does not advise the NCCC, but will participate equally in the NCCC to strengthen the government's position. The IGCCC meets and discusses the following:
 - Proposed global climate change projects, including proposals under the CDM and other flexible mechanisms
 - The promotion and, in certain circumstances, the initiation of IGCCC research in South Africa
 - Promotion of regional cooperation issues.
49. At the Climate Change Summit held in March 2009, which was attended by approximately 900 representatives from government, business and the scientific and academic communities, civil society and labour, a consultative process was initiated to develop the South African NCCRP. In achieving policy implementation, issues and areas of work were identified for key sectors and stakeholders. It was indicated that the NCCRP would be developed through a participatory, multi-

stakeholder, consultative and iterative process.

50. In taking the policy development process further, the Climate Change Summit Statement reads that all key affected national departments must initiate and facilitate the development of the sector-specific components of the NCCRP that fall within their mandate, jurisdiction or sphere of influence. These developments were highlighted at the Summit and included the following:

- Local government must initiate and facilitate the development of the municipal components of the NCCRP, including undertaking vulnerability and risk assessments in their areas and the integration of climate adaptation and mitigation actions into Integrated Development Plans.
- Provincial government must initiate and facilitate the development of the provincial aspects of the NCCRP, in particular the integration of climate change issues into provincial spatial and strategic plans.
- Business committed to work actively with government and other stakeholders to contribute to a sound climate change response policy. Business also committed to other initiatives such as:
 - achieving higher levels of energy efficiency
 - working with the DEA on the collection of greenhouse gas emission data for the 2000 greenhouse gas inventory and working with the Department of Trade and Industry (DTI) to develop sectoral mitigation actions that will contribute to the policy process.
- Civil society, labour and the faith communities will continue to raise public awareness and motivate individuals, institutions and authorities to take action to reduce greenhouse gas emissions and adapt to the adverse impacts of climate change.

Enforcement

51. To address the general lack of compliance and to enforce environmental legislation and fight environmental crime, a directorate dealing specifically with the enforcement of pollution and waste legislation was set up within the DEA in September 2003. An amendment to the NEMA provides for the designation of environmental compliance and enforcement officials at all three levels of government, with wide-ranging powers to carry out compliance monitoring and enforcement activities. The designation of

environmental management inspectors has provided a strong basis for future monitoring of the management and enforcement of environmental legislation. These inspectors may be designated with powers to, among others things:

- conduct routine inspections
- question people
- inspect books and records
- take samples and execute search warrants.

52. National government's objective is to minimise non-compliance with environmental legislation by increasing the number of environmental management inspectors in all spheres of government from 750 in 2007-08 to 1 500 in 2011-12.

Management framework for donor funding

53. It is a stated principle of the UNFCCC that donor funding for climate change initiatives should be in addition to the overseas development aid received by each developing country from a developed country. South Africa, as a signatory to the UNFCCC, explicitly insists that the developed country indicate that the donated funds are intended specifically for climate change initiative funding and not for overseas development aid.

54. Information regarding international donor funding specifically for climate change initiatives, which is provided in addition to overseas development aid, is available and accessible to the South African departments.

55. The DEA is the focal point for the Global Environment Facility⁶ and facilitates funding for projects focusing on climate change and biodiversity for government departments and other organisations but the resources are not received by the DEA. These donor funds are received by the National Treasury (on behalf of the departments) for climate change projects. The funds are then transferred or channelled to the departments for use in the climate change projects.

⁶ *The Global Environment Facility is a global partnership among 178 countries, international institutions, non-governmental organisations (NGOs) and the private sector to address global environmental issues while supporting national sustainable development initiatives. It provides grants for projects related to six focal areas: biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants (www.gefweb.org).*

56. However, not all donor funding within South Africa⁷ is controlled or managed at a specific or central department. Within each government department climate change initiatives are identified and donor funding is obtained by that department for those initiatives identified.
57. The DEA has its own projects and receives donor funding from three countries, namely the United Kingdom, Denmark and Germany. These projects are specifically for the reduction of greenhouse gas emissions. Donor funding is managed by a coordinator at the DEA, who has a system in place to manage the donor fund, and detailed reports can be drawn from the system indicating the status and funds allocated.
58. All the developed countries that have made funds available specifically for climate change initiatives are listed and available at the departments. However, it remains a challenge to obtain the funding due to competition in the international arena.
59. The Medium-Term Expenditure Framework⁸ guidelines provide a framework for the management of donor funding:

National and provincial departments and entities are required to provide a schedule of all donor funding over the Medium-Term Expenditure Framework period, together with a brief description and timelines of how the funds will be spent. Where monetary value cannot be attached to in-kind contributions, a brief narrative description of the contribution must be provided. Performance information, including specific outputs per project, must also be identified on programme and donor funding sheets and summarised separately to inform evaluation.

⁷ Refer to table 1 for an indication of donor funding at some key departments.

⁸ The Medium-Term Expenditure Framework is a tool to encourage cooperation across ministries and planning over a longer period than the immediately upcoming fiscal year.

Table 1: Donor funding at some key departments and the relevant focus areas

Department	Project name	Donor country / entity	Amount committed R'000	Spending focus
Department of Environmental Affairs	Environmental quality and protection	Norway	25 000	Monitoring of the environmental quality on climate change
		Denmark	2 274	Measurable improvements in air quality in South Africa
			48 000	National waste management strategy developed and currently implemented
			47 000	Development programme on environmental management for urban areas
		World Bank	34 000	Tracing and collection of all redundant pesticides in the country and the disposal thereof
Department of Minerals and Energy	Electricity, nuclear and clean energy	Norway	9 058	Compilation and publication of quality of electricity supply policy and regulations, and the development of national electricity pricing policy
Department of Human Settlement	Energy efficiency project	Denmark	2 133	Provided support on the energy efficiency programme in low-cost housing
Department of Transport	Sustainable public transport and sport	Global Environmental Fund	82 541	Supporting transport improvements in seven 2010 Soccer World Cup cities
Department of Science and Technology	Climate change regional conference	Japan International Cooperation Agency	600	Supporting the South African Development Community climate change agenda

SOURCE: 2009 Estimates of National Expenditure

5. Mitigation efforts in South Africa

Legislation

60. The Air Quality Act was designed to give effect to section 24 of the Constitution in order to enhance the quality of ambient air to secure an environment that is not harmful to the health and well-being of people. The Air Quality Act provides for a comprehensive air quality management planning regime within all spheres of government. This planning regime has been tailored to ensure that it fits into the existing environmental management planning and reporting regime required by NEMA.
61. Although the reduction of greenhouse gas emissions will become the overall goal of any possible regulations in terms of the Air Quality Act, in the short-term the most important regulatory goal will be to establish a sound information base that will inform greenhouse gas emission reduction regulations.

Strategies and plans

62. In the UNFCCC agreement was reached on the principle of equity and *common but differentiated responsibility* in terms of which developed nations would take the lead in mitigating greenhouse gases. According to the Convention, countries are periodically required to submit reports to the Conference of Parties on various topics regarding their attempts to address climate change. Thus far South Africa has been exempt from taking mandatory action to reduce emissions. South Africa has a loose commitment to mitigate under the Convention, but no legally binding, quantified target exists.
63. Under the Kyoto Protocol, carbon constraints, or caps, were placed on industrialised countries only (the term *industrialised countries* is similar to *developed countries*). In the first commitment period (2008 to 2012), South Africa, together with other larger developing countries such as Brazil, China and India, may continue to grow without any cap on emissions. However, once the developed nations take the lead with more ambitious emission reductions, the UNFCCC expects at least some developing countries to assume a share of the common (albeit still differentiated) responsibility.

Policy framework

64. According to the Long-Term Mitigation Scenarios (LTMS), its aim was to develop and support a durable climate change policy. Such a policy would give South African negotiators under the UNFCCC a clear and mandated position for negotiations, and ensure that South African stakeholders understood and committed to a range of realistic strategies for future climate action.
65. The LTMS project was a participatory, research-based scenario-building process, identifying South Africa's emissions trajectory and formulating a range of potential strategies that would allow South Africa to reduce its emissions in a way that is appropriate to its national circumstances and capabilities.
66. After the conclusion of the LTMS process, a number of key approaches were agreed on by Cabinet in July 2008 which provided an overarching framework for the development of a climate change policy for South Africa. These approaches to limiting greenhouse gas emissions were highlighted in the NCCRP and included the following:
- South Africa must establish a regularity framework and a set of partnerships to ensure that there is accurate measurement of greenhouse gas emissions by sector and that these measurements are regularly updated and the results made known.
 - Proposed regulations and pricing structures for electricity are being prepared by the Department of Minerals and Energy.
 - National Treasury is taking forward the LTMS recommendation to undertake a study on carbon taxation and is conducting a carbon pricing study.
 - The transport sector is another key growth sector. Policies, procedures and measures are being put in place to substantially reduce the greenhouse gas emissions from this sector. These measures include the various national, provincial and local initiatives around modal shift in passenger transport, the regeneration of the rail network, and the work being done to reduce vehicle emissions.
67. The process to compile the LTMS combined four research groups with a technical team of sector-based individual experts, forming a Scenario-Building Team. A bank

of data has been produced through modelling and this was captured in the LTMS Technical Report. Cost and emission levels for a number of actions were captured. This work covered energy and non-energy emissions in South Africa. The data has been fed into an economy-wide modelling process, giving further results for the effect on Gross Domestic Product (GDP), job creation and wealth distribution.

68. The following significant sectors of greenhouse gas emissions were addressed in the LTMS:

Energy sectors

- Energy industry – sub-bituminous coal for public electricity and refinery coal
- Fugitive emissions – underground mining
- Transport – road gasoline
- Manufacturing and construction – other bituminous coal
- Industry processes – iron production, blast furnaces and steel production oxygen furnace.

Non-energy sectors

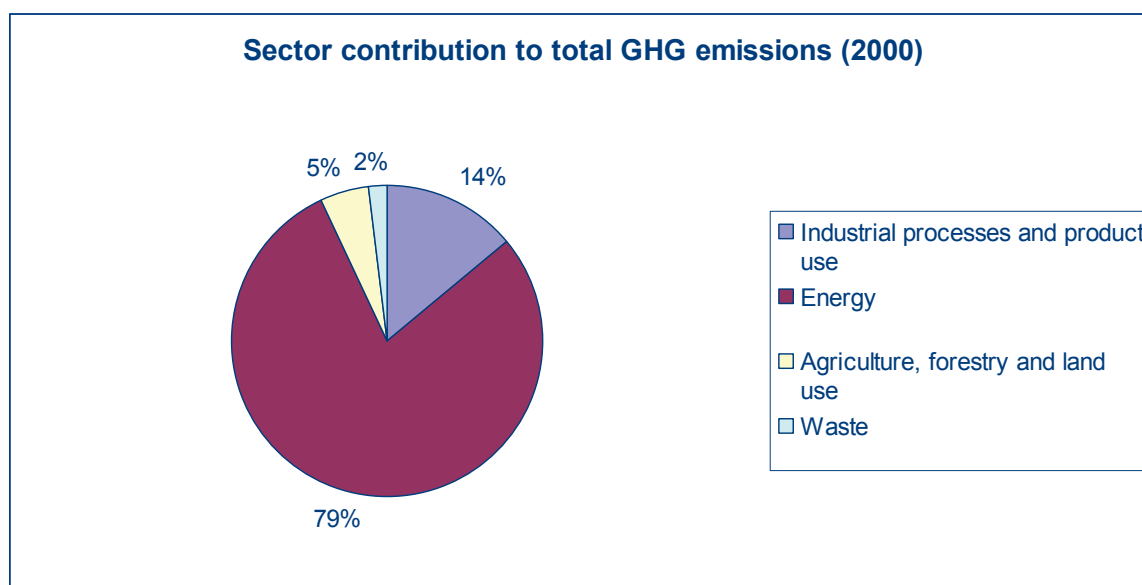
- Waste – solid waste disposal on land
- Agriculture
- Forestry
- Livestock
- Land use.

Greenhouse gas emissions

69. The only available data about greenhouse gas emissions in South Africa identified during this review was from a national inventory of greenhouse gas emissions, established for the base year 1990 and published in 1999, and subsequently brought up to date for the year 1994 and published in South Africa's Initial National Communication under the UNFCCC in 2000. The responsibility for preparing the greenhouse gas inventory lies with the DEA. The inventory is prepared in accordance with guidelines produced by the IPCC in 1996.

70. The Energy Research Centre and Council for Scientific and Industrial Research are engaged in the development of the new greenhouse gas emissions inventory, with year 2000 as the baseline and using the IPCC (2006) where appropriate. According to the DEA, the inventory will be used for the Second National Communication to the UNFCCC and will be included as a module in the South African Air Quality Information System currently being developed for the DEA. Furthermore, the DEA indicated that the greenhouse gas inventory would be a critical source of information for air quality management in South Africa. According to illustration 1 it is clear that the energy sector is the main emitter of greenhouse gases.

Illustration 1: South Africa's greenhouse gas emission profile per sector:



Implementation and results measurement

71. Over the past decade South Africa (as a Non-Annex I country) has participated in the UNFCCC processes and has done a substantial amount of work to meet its commitments in terms of the Convention and the Protocol. It has also taken forward the challenge of determining what national action is necessary to address climate change. Specifically, South Africa produced the following documents for the UNFCCC:

- An initial Greenhouse Gases Inventory (base year 1990) in 2004. This has now been updated and a second Greenhouse Gases Inventory (base year 2000) is nearing completion.
- An Initial National Communication, with a second iteration for submission to the UNFCCC in 2010.

Tracking of costs

72. The National Treasury, whose mandate is legislated in the Public Finance Management Act, 1999 (Act No. 1 of 1999), is, among others, responsible for coordinating intergovernmental financial and fiscal relations.

73. The National Treasury tracks the expenses and revenues relating to climate change through the various departments and the programmes implemented by the departments. Annual regularity audits are conducted by the AGSA and opinions are expressed on whether the departmental financial statements constitute a fair presentation.

Specific policy instruments

74. Government outlined its vision for a climate policy by designing an NCCRP for the transition to a climate-resilient and low-carbon economy and society through balancing mitigation and adaptation responses. This vision establishes a framework within which the work of developing an NCCRP is conducted. With reference specifically to the mitigation strategy, government adopted the following vision based on the information obtained through the LTMS:

- The “Start Now” strategic option is based, inter alia, on accelerated energy efficiency and conservation across all sectors, including industry, commerce, transport and residential, among others, through stringent building standards.
- The “Reach for the Goal” strategic option by investing in ambitious research and development targets focusing on carbon-friendly technologies, identifying new resources and effecting behavioural change.
- Furthermore, regulatory mechanisms as set out in the “Scale Up” strategic option will be combined with economic instruments such as taxes and incentives under the “Use the Market” strategic option, with a view to the following:
 - Setting ambitious and mandatory (as distinct from voluntary) targets for energy efficiency and in other sub-national sectors.
 - Increasing the price on carbon through an escalating CO₂ tax or an alternative market mechanism.
 - Diversifying the energy mix away from coal whilst shifting to cleaner coal by, for example, introducing more stringent thermal efficiency and emissions standards for coal-fired power stations.
 - Setting similar targets for electricity generated from both renewable and nuclear energy sources by the end of the next two decades.
 - Laying the basis for a net zero-carbon electricity sector in the long term.
 - Incentivising renewable energy through feed-in tariffs.
 - Exploring and developing carbon capture and storage for coal-fired power stations and all coal-to-liquid plants, and not approving new coal-fired power stations without carbon capture readiness.
 - Introducing industrial policy that favours sectors using less energy per unit of economic output and building domestic industries in these emerging sectors.
 - Setting ambitious and, where appropriate, mandatory national targets for the reduction of transport emissions, including through stringent and escalating fuel efficiency standards, facilitating passenger modal shifts towards public transport and the aggressive promotion of hybrids and electric vehicles.

75. To ensure that current and future greenhouse gas mitigation interventions are properly monitored and measured, the DEA is in the process of developing the

National Greenhouse Gases Information Management System as part of the South African Air Quality Information System that is hosted by the South African Weather Service. This system is likely to include mandatory greenhouse gas emission reporting by all significant emitters and emission information holders.

76. In support of this work and in order to continuously improve the accuracy of the greenhouse gas inventory, the Department of Agriculture is compiling a detailed sector inventory to feed into, and complement, the national inventory. A cooperative relationship with industry in relation to greenhouse gas reporting has also been developed and forms the basis for ongoing reporting over time.

77. National Treasury is developing policy instruments to enhance the environment and reduce emissions. The following measures were highlighted in the 2009 budget speech by the Minister of Finance:

- Introduce an additional excise duty on motor vehicles that takes account of the amount of carbon emitted.
- Charge approximately R3 a light bulb on incandescent bulbs.
- Qualify investments by companies in energy efficient equipment for an additional allowance of up to 15%. This is on top of the prior year's announcement of a 2c/kilowatt hour levy on non-renewable sources of electricity with effect from 1 July 2009.
- Exempt the sale of certified emission reductions (also known as carbon emission reduction credits) from income tax.
- Businesses to obtain notional deductions for income tax purposes for energy efficiency savings from certified baselines, which will be based on energy efficiency certificates issued by the National Energy Efficiency Agency.

78. To give effect to two budget proposals, namely exemption of the sale of certified emission reductions from income tax and tax deductions allowable to businesses for energy efficiency savings from certified baselines, a draft Taxation Laws Amendment Bill, dated 1 June 2009, has been issued for public comment.

CDM projects

79. One strategy within the 1997 Kyoto Protocol for reducing greenhouse gases is the

CDM which allows industrialised countries with emission reduction commitments to meet part of their commitments by investing in projects that reduce emissions in developing countries. These projects need to support sustainable development in the host countries and must lead to emission reductions that are real, measurable and long term.

80. To facilitate these projects, host countries need to designate national authorities to evaluate and approve the operation of such projects in their country. South Africa has established a Designated National Authority (DNA) to fulfil this function as well as other functions related to the successful implementation of the projects in South Africa. A regulation under section 25 of the NEMA, which established the DNA and was gazetted on 24 December 2004 by the Minister of the Department of Minerals and Energy, provides the DNA with its legal mandate to oversee the CDM in South Africa.

81. The DNA in South Africa has developed:

- an approval procedure to be followed for evaluating whether a project meets the sustainable development requirements for South Africa.
- a set of sustainable development criteria to be used to guide this evaluation. The rules of the CDM leave the definition of what sustainable development is as a sovereign decision of each developing country.

82. The DNA evaluates CDM projects submitted to it through consideration of the following sustainable development criteria:

- Economic: Does the project contribute to national economic development?
- Social: Does the project contribute to social development in South Africa?
- Environmental: Does the project conform to the NEMA principles of sustainable development?

The NEMA defines sustainable development as “the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations”.

83. From a developing country perspective, the CDM offers the following opportunities:

- It can attract capital for projects that assist in the shift to a more prosperous but less carbon-intensive economy.
- It encourages and permits participation of private and public sectors.
- It can be an effective tool of technology transfer if investment is channelled into projects that replace old and inefficient fossil fuel technology or create new industries in environmentally sustainable technologies.
- It can help define investment priorities in projects that meet their sustainable development goals.

84. The CDM statistics in South Africa are as follows:

- As at 13 July 2009, 125 CDM projects had been submitted to the DNA – 96 Project Idea Notes (PIN) and 29 Project Design Documents (PDD).
- Fifteen (54%) of the 29 PDDs have been registered by the CDM Executive Board as CDM projects (four requesting CERs⁹), and 14 are at different stages of the project cycle – validation stage and/or request for review.
- The projects submitted to the DNA for initial review and approval cover the following types: bio-fuels, energy efficiency, waste management, cogeneration, fuel switching and hydro-power, and cover sectors like manufacturing, mining, agriculture, energy, waste management, housing and residential.

Contribution of donor funding to greenhouse gas reduction

85. The DEA confirmed that South Africa does not have a policy or a White Paper¹⁰ on climate change. The NCCRS is currently used for the mitigation of climate change. The present climate change projects are still in a development phase and therefore the reduction in greenhouse gas emissions cannot be determined. Once the projects are operational, the emission reductions will be quantifiable.

⁹ *Certified Emission Reductions (CERs) are carbon credits issued by the CDM Executive Board for emission reductions achieved by the CDM projects.*

¹⁰ *A White Paper is an official paper outlining the government's policy on a matter to be brought before Parliament.*

6. Adaptation efforts in South Africa

Assessing risks and vulnerabilities

86. The intention of the Vulnerability and Adaptation section of the SACSCC was to assess the potential impact of climate change in South Africa. It has three overall objectives, namely:
- to identify the sectors and areas most vulnerable to climate change
 - to propose suitable adaptation measures to offset adverse impacts
 - to synthesise vulnerability and adaptation results across sectors for policy or mitigation analysis.
87. The Vulnerability and Adaptation section was divided into a number of sub-sections, each undertaken by a range of South African scientists and consultants, culminating in the production of individual reports as well as a summary report. The results of these were included in a Final Synthesis Report.
88. The Vulnerability and Adaptation research effort constituted the following sections: climate scenarios, water resources, agriculture, human health (malaria and schistosomiasis), commercial forestry, rangelands and biodiversity (plant, animal and marine). The sections were chosen as areas with a close relationship to climate, and each sector has a separate technical report associated with the Vulnerability and Adaptation research effort. Other sectors of the South African economy that may be less directly related to climate (such as manufacturing or transport) are addressed in the Mitigation section of the SACSCC.
89. The SACSCC identified the health sector, maize production, plant and animal biodiversity, water resources and rangelands as areas of highest vulnerability to climate change and these are the areas that need to be targeted for adaptation measures. These vulnerable areas are addressed in the NCCRS.

Strategies and plans

90. According to the IPCC Third Assessment Report, climate change will continue even if global greenhouse gas emissions are curtailed significantly in the short to medium

term. Global climate change poses a threat to sustainable development, especially in developing countries, and could undermine global poverty alleviation efforts and have severe implications for food security, clean water, energy supply, environmental health and human settlements.

91. Acknowledging the overall vulnerability to climate change impacts, the DEA realises that it is necessary to implement adaptation measures in South Africa.
92. Furthermore, the NCCRS states that the South African economy is vulnerable to the possible response measures implemented by developed (Annex 1) countries, since the economy is highly dependent on income generated from the production, processing, export and consumption of coal. This vulnerability extends across virtually all facets of the mining and energy sectors.
93. The South African government has outlined its vision for climate policy, namely to continue to proactively build its knowledge base and capacity to adapt to the inevitable impacts of climate change, most importantly by enhancing early warning and disaster reduction systems and rolling out basic services, water resource management, infrastructure planning, agriculture, biodiversity and health-related services.
94. At the Climate Change Summit 2009, the following resolutions were adopted with regard to adaptation to climate change:
 - Working for adaptation – developing a green jobs programme to build climate resilience.
 - Ensuring that the Industrial Policy Action Plan review includes the promotion of green technologies to address both adaptation and mitigation.
 - Accelerating the development of the Risk and Vulnerability Atlas to inform adaptation responses and planning.
 - Facilitating the development of Climate Change Adaptation Sector Plans.
 - Placing the climate change response in the context of equity, sustainable development and poverty eradication.
95. A Climate Change Adaptation Unit was recently established at the DEA. This unit has drafted an action plan to address the objectives of adaptation in government. The unit has identified key performance areas to achieve the commitments made at

the Climate Change Summit 2009.

96. Furthermore, the South African Risk and Vulnerability Atlas, which is a new atlas of local risk and vulnerability in a global climate change context, will be launched in January 2010. The Atlas is aimed at equipping decision-makers with information on the impact of and risk associated with climate change in the region.
97. The South African Risk and Vulnerability Atlas project is sponsored by the Department of Science and Technology and managed by the Council for Scientific and Industrial Research, with key inputs from South African institutions and research groups.

Cost estimates

98. The LTMS provides an estimate of the potential cost, firstly of damages due to inaction as a result of low levels of adaptive capacity through human and financial constraints, and secondly of the cost to accommodate the climate impacts in water resource planning and the conservation of biodiversity. The cost in terms of health and livelihoods is difficult to estimate, given that there are multiple influences and impacting factors.

Table 2: Cost of inaction due to low adaptive capacity and resilience

Impacts	Magnitude of costs
<i>Historical</i>	
Flood damage event in the Western Cape due to extreme rainfall (2003)	100s of millions of rands/event
Coastal storm damage along the Durban coast due to extreme weather event (2007)	100s of millions of rands/event
Drought losses in forestry losses (1991/92)	100s of millions of rands/event
Wildfire losses in forestry (2007)	>R500 million (initial estimate)
<i>Potential</i>	
Damage to residential property in the Western Cape due to sea-level rise	10-100s of millions of rands (2002 estimated values)

Impacts	Magnitude of costs
Increased temperature on winter rainfall agriculture: 2-3°C	5-20% fruit crop loss (varying losses depending on location and crop type)
Lower rainfall on winter rainfall agriculture over time	Marginal areas – 15-60% crop reduction Productive areas – 5-12% crop reduction
Increased temperature across the Highveld maize region (summer rainfall): 2°C	100s of millions of rands - reduces profits by ~R500/ha

Table 3: The potential cost of acclimation adaptation

Interventions	Magnitude of costs
Small town water provision in the Western Cape under climate change by 2035	10s of millions of rands per small municipality (up to 3,5 times more costly)
Conserving biodiversity – gene and seed banking	100s of thousands of rands
Conserving biodiversity – reserves and off-reserve management	10-100s of millions of rands

SOURCE: LTMS Report

E. Recommendations

When conducting agreed-upon procedures, recommendations do not normally form part of a report according to ISRS 4400. However, during these projects, areas were identified where some recommendations may be relevant, including the following:

99. Although the DEA has established monitoring groups, the performance of climate change actions by all relevant role players should be monitored and evaluated vigorously to enable government to adjust the efforts and thereby improve the status of performance and achievement of the targets. Performance targets should be developed that are specific, measureable, attainable, relevant and time bound (SMART).

100. Government should regularly report in a transparent way on performance against targets. Reporting should be directed at the public, Parliament and national stakeholders. Such reports should be clear, complete and easily understandable.
101. CDM projects in South Africa should be expanded and encouraged so as to deliver greater value to the country as only 12% of the submitted projects are registered by the CDM Executive Board. Processes and turnaround times should be more effective to enable CDM projects to optimally support sustainable development and reduce emissions.
102. Criteria should be developed to assess the contribution of CDM projects to technology transfer.
103. Strategies and plans that will be developed to establish greenhouse gas reduction targets should be specific, measureable, attainable, relevant and time bound (SMART).
104. The greenhouse gas Inventory Management System should be developed in such a way that emission records and forecasts are maintainable and credible.
105. Adherence to roles and responsibilities assigned to government agencies should be monitored and evaluated.
106. The efficiency and effectiveness of mitigation and adaptation policy instruments should be measured and the achievement by the instruments should be reported on.
107. The effectiveness of oversight functions provided by government over the responsible agencies and actors should be evaluated and reported on.

F. Appreciation

108. The assistance rendered by the staff of the DEA is sincerely appreciated.

Pretoria

January 2010



A U D I T O R - G E N E R A L
S O U T H A F R I C A

Auditing to build public confidence

G. Glossary

Text	Description
AGSA	Auditor-General of South Africa
CDM	Clean Development Mechanism
DNA	Designated National Authority
DEA	Department of Environmental Affairs
IGCCC	Intergovernmental Committee on Climate Change
INCOSAI	International Congress of Supreme Audit Institutions
IPCC	Intergovernmental Panel on Climate Change
LTMS	Long-Term Mitigation Scenarios
NCCRP	National Climate Change Response Policy
NCCRS	National Climate Change Response Strategy
NEMA	National Environmental Management Act
UNFCCC	United Nations Framework Convention on Climate Change

Annexure A: Approach matrices

The table indicates which prescribed questions were addressed and refers to the applicable paragraph in the report.

All questions were not explicitly answered, as South Africa is a developing country and only in the initial stages of response to climate change.

MITIGATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
1. Strategies, plans and targets	To determine whether the government has developed appropriate strategies or plans to meet its commitments for mitigation of greenhouse gas emissions.	1.1 What commitments relating to mitigation of greenhouse gas emissions have the government adopted?	5; 39; 40; 62; 63
		1.2 Do strategies or plans exist to meet these commitments? If so, at what level - regional, national, sectoral?	37; 64
		1.3 Do they address sources (or sinks) of greenhouse gas emissions?	38; 68
		1.4 Which policy instruments are being adopted or used by the government? (Also see section 5)	6; 10; 31; 32; 33; 34
		1.5 Do the plans or strategies establish reduction targets?	60; 61
		1.6 Are the targets specific, measurable, attainable, relevant and time bound (SMART)?	103

MITIGATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
	To determine whether the government has adequate information to support policy choices and decision-making.	1.7 Are policy choices and targets based on environmental, social and economic data?	32; 65; 66; 67; 82
		1.8 Is the government maintaining inventories and forecasts of greenhouse gas emissions?	35; 60; 61; 69; 70; 104
2. Implementation and results measurement (Also see sections on specific sectors and specific tools)	To determine whether the government is fulfilling/achieving its commitments/targets.	2.1 Is the government on track in meeting intended targets? Which ones has it met?	62
		2.2 Are uses of the Kyoto mechanisms supplementary to domestic action? (Results of domestic measures in relation to acquired quotas, interpretation of supplemental)	101
	To determine whether the government is evaluating/monitoring performance.	2.3 Is the government measuring its performance so that it can adjust its efforts? (Process based)	99
	To determine whether the government is regularly reporting in a transparent way on performance against targets.	2.4 Are there regular reports to the public or to others (e.g. Parliament, international organisations, EU, national stakeholders)?	71; 100
		2.5 Are the reports clear, complete and easily understandable?	100
	To determine whether the government is tracking the costs of mitigation measures.	2.6 Is the government tracking expenses and revenues?	72; 73
		2.7 What are the costs and revenues? Is there evidence that these are reasonably accurate?	73

MITIGATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
3. Coordination, governance	To determine whether effective governance and coordination arrangements have been put in place between relevant agencies and other players.	3.1 Are the roles and responsibilities assigned to government agencies documented?	7; 41; 42; 43; 44; 45; 46; 47; 48; 49; 50
		3.2 Do agencies adhere to roles and responsibilities? If not, why not - what are the causes, e.g. do they have capacity and resources?	45; 51; 52; 105
		3.3 Are mitigation efforts coordinated to ensure that they are complementary rather than conflicting?	45; 46; 47; 48
		3.4 Is government providing oversight of responsible agencies and actors?	107
4. Specific policy instruments¹¹	To determine whether specific policy instruments selected by the government are working/contributing in meeting the targets.	4.1 What are the most important policy instruments applied?	74; 75; 76; 77; 78
		4.2 What are the main principles behind the choice of policy instruments (e.g. cost-efficiency)?	74; 77
		4.3 What means does the government use to measure the relative contribution or effectiveness of each policy instrument?	106
		4.4 How efficient are they? If not, what is the reason?	Not included in the scope

¹¹ *Specific policy instruments: Legislation; regulation and standards; taxes and charges; subsidies and tax credits; clean development mechanism; joint implementation; voluntary agreements; building codes; education and information; and emission trading (national and international).*



MITIGATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
		4.5 How effective are they?	Not included in the scope
		4.6 Have the expected results for specific tool(s) been achieved or are they being achieved?	106
• Emission trading and tradable permits	To determine whether the emission trading system is working/contributing in meeting the targets.	4.7 Is the data available on actual and expected (forecasting) emissions at the facility level?	Not included in the scope
		4.8 Are registry systems in place?	Not included in the scope
		4.9 What were the principles for allocating the quotas for the plants?	Not included in the scope
		4.10 Are reports on actual emissions from companies verified?	Not included in the scope
		4.11 Are reserves sufficient for future growth in the market?	Not included in the scope
		4.12 Are emission trading systems efficient and cost-effective?	Not included in the scope
		4.13 In cases where quotas are sold is the money received used in order to reduce emissions?	Not included in the scope
• Audit of CDM projects	To determine whether the CDM projects meet their objectives in contributing to global emission reductions.	4.14 What strategy and plans have been developed for the purchase of CDM quotas?	Not included in the scope
		4.15 What criteria are used for selection of projects?	Not included in the scope

MITIGATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
		4.16 What criteria are used to assess projects in terms of additionality, leakage and permanence?	Not included in the scope
		4.17 What criteria are used to assess projects' contribution to sustainable development?	82
		4.18 What criteria are used to assess projects' contribution to technology transfer?	83; 102
5. Specific Sectors <ul style="list-style-type: none"> • Energy • Transport • Industry • Agriculture • Waste • Land-use change and forestry 	To determine whether the government has identified sector-specific risks to climate change and has put measures in place to deal with those risks.	5.1 Researchable questions such as those in sub-topics 1, 2, 3 and 4 can be tailored to the specific sectors included in the approach.	Not included in the scope
6. Donor funding (can be applied to Mitigation or Adaptation)	To determine whether recipient countries have a management framework in place to effectively access and manage funds made available by donor countries.	6.1 Is success achieved in obtaining funds from donor countries to support programmes and projects aimed at reducing greenhouse gas emissions?	58
		6.2 Is there a framework in place to manage the funds received?	56; 57; 55; 59
	To determine whether donor countries have a fund transfer framework in place to effectively provide funds to recipient countries	6.3 Is the provision of funds facilitated through a fund transfer framework aimed at building capacity and achieving results (i.e. reducing greenhouse gas emissions) in recipient countries?	Not included in the scope
		6.4 Is the funding in addition to overseas development aid?	53

MITIGATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
		6.5 Is information on donor funding and its use available and accessible?	54; 57
	To determine whether the funds contribute to the targets of reducing emissions	6.6 To what extent does the funding contribute to reducing emissions in the recipient countries?	85

ADAPTATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
7. Assessing risks and vulnerabilities	To determine whether the government has assessed the key vulnerabilities based on identified risk (impacts and adaptive capacity). (Could address short- and long-term and direct and indirect impacts)	7.1 Has the government made a commitment to undertake an overall country risk assessment?	34
		7.2 Has the government produced a country-specific risk assessment?	8; 34; 35; 86; 87; 88; 89
		7.3 Has the risk assessment been subject to a quality control, review and consultation process	36; 87
8. Strategies, plans and targets (short- and long-term)	To determine whether the government has in place an overarching policy / plan / strategy in response to the assessed risks (impacts and adaptive capacity).	8.1 What commitments has the government made in relation to adaptation to climate change?	39; 40; 92; 94
		8.2 Has the government developed a policy / plan / strategy on adaptation?	8; 37; 93; 95; 96; 97
		8.3 Was it developed in response to the assessed risks?	37; 38
		8.4 Does the policy / plan / strategy include vulnerabilities and risks identified?	89
		8.5 Have judgements been made and communicated about the extent to which risks are to be avoided, mitigated or accepted?	Not included in the scope



ADAPTATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
		8.6 Has the government assessed and declared its understanding of the costs and benefits of its adaptive measures?	98
		8.7 Has the government identified policy tools to adapt to climate change?	Not included in the scope
9. Implementation and results measurement (See also sections on specific sectors and specific tools)	To determine whether the policy / plan / strategy is effective and efficient in producing the expected results.	9.1 Is the government evaluating / monitoring performance overall?	Not included in the scope
		9.2 Have the overall expected results been achieved / are they being achieved? If not, why not, and what lessons have been learned?	Not included in the scope
		9.3 What is the level of expenditures? How and on what basis have they been allocated?	Not included in the scope
		9.4 Is the government on track to meet its national / international commitments?	Not included in the scope
		9.5 Is the government regularly reporting in a transparent way on performance overall?	Not included in the scope
10. Specific policy instruments	To determine whether specific policy instruments chosen by the government are effective in achieving the intended result. ¹²	10.1 Is the government evaluating / monitoring performance for specific policy tools?	Not included in the scope

¹² For example: Land-use planning; emergency planning; flood defence and management; technology transfer; education and information dissemination; natural resource management; legal and regulation; economic instruments; donor funding; science, research and development and technological innovations; global and inter-regional capacity building; and Technology Development Programmes.

ADAPTATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
		10.2 Have the expected results for specific tools been achieved / are they being achieved?	Not included in the scope
		10.3 Is the government regularly reporting in a transparent way on performance for specific tools?	Not included in the scope
		10.4 Is the overall performance information complete, valid and reliable? Is the performance information for specific tools complete, valid and reliable?	Not included in the scope
		10.5 If the progress is unsatisfactory overall, does the government understand the reason(s) and is it addressing the problem? If progress is unsatisfactory for specific tools, does the government understand the reason(s) and is it addressing the problem?	Not included in the scope
11. Specific sectors ¹³	To determine whether the government has assessed the key vulnerabilities for individual specific sectors based on identified risk (impacts and adaptive capacity).	11.1 Researchable questions such as those posed in sub-sections 7, 8, 9 and 10 can be tailored to the specific sectors included in the approach.	Not included in the scope
12. Coordination, governance	To determine whether effective governance and coordination arrangements have been put in place between relevant agencies and other players.	12.1 Are the roles and responsibilities assigned to government agencies documented?	41; 42; 43; 44; 45; 46; 47; 48; 49; 50

¹³ *Specific sectors: Forestry, Agriculture (arable and livestock), Fisheries, Public health, Coastal zones, Public infrastructure (including residential and commercial buildings), Food supply, Transport and its infrastructure, Tourism, and Sensitive ecosystems*



ADAPTATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
		12.2 Are adaptation efforts coordinated across government to ensure that they are complementary rather than conflicting?	45
		12.3 Has the government put in place sufficient and effective systems for: <ul style="list-style-type: none"> • monitoring • coordination • integration • assigning responsibility • measurement • reporting • accountability? 	41; 42; 43; 44; 45; 46; 47; 48; 100; 107
13. Monitoring and Forecasting Impacts (long-term) ¹⁴	To determine whether the government has identified and undertaken modelling and monitoring activities or programmes.	13.1 Has government identified and prioritised the modelling and monitoring activities or programmes?	Not included in the scope
		13.2 Does the government have access to the necessary capacity to undertake the activities or programmes?	Not included in the scope
		13.3 Has the government implemented the activities or programmes?	Not included in the scope
		13.4 What results have been achieved?	Not included in the scope
		13.5 Have the activities and programmes been evaluated and the feedback used to improve them?	Not included in the scope

¹⁴ *Monitoring and Forecasting Impacts: Ecosystem, Water, Temperature, Agriculture, Human settlements and Human health*

ADAPTATION			
Sub-topics	Objectives	Researchable questions	Paragraph reference
14. Donor funding (applied to adaptation)	To determine whether recipient countries have a management framework in place to effectively access and manage funds made available by donor countries.	14.1 Is success achieved in obtaining funds from donor countries to support programmes and projects aimed at adapting to climate change?	58
		14.2 Is there a framework in place to manage the funds received?	56; 57; 57; 55; 59
	To determine whether donor countries have a fund transfer framework in place to effectively provide funds to recipient countries.	14.3 Is the provision of funds facilitated through a fund transfer framework aimed at building capacity and achieving results (i.e., adapting) in recipient countries?	Not included in the scope
		14.4 Is the funding in addition to overseas development aid?	53
		14.5 Is information on donor funding and its use available and accessible?	54; 57



