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**SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE**

**Twenty-third session**

**Montreal, 28 November to 6 December 2005**

**Item 4 of the provisional agenda**

**Scientific, technical and socio-economic aspects of mitigation of climate change**

## **Views on lessons learned from the mitigation workshops held to date and on future work on mitigation of climate change**

### **Submissions from Parties**

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its twenty-first session (FCCC/SBSTA/2004/13, para. 22), invited Parties to submit, by 5 August 2005, their views on lessons learned from the mitigation workshops held to date and any future steps under this agenda item. The SBSTA requested the secretariat to compile these submissions into a miscellaneous document to facilitate the ongoing consideration of these topics under this agenda item by SBSTA at its twenty-third session.
2. The secretariat has received 10 such submissions. In accordance with the procedure for miscellaneous documents, these submissions are reproduced\* in the language in which they were received and without formal editing.

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**FCCC/SBSTA/2005/MISC.12**

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CONTENTS

	<i>Page</i>
1. AUSTRALIA (Submission received 5 August 2005) .....	3
2. CANADA (Submission received 8 August 2005) .....	6
3. CHILE (Submission received 11 August 2005) .....	8
4. CHINA (Submission received 3 August 2005) .....	9
5. LUXEMBOURG ON BEHALF OF THE EUROPEAN COMMUNITY AND ITS MEMBER STATES* (Submission received 30 June 2005) .....	11
6. NEW ZEALAND (Submission received 9 August 2005) .....	14
7. SAUDI ARABIA (Submission received 22 July 2005) .....	16
8. SWITZERLAND (Submission received 11 August 2005) .....	18
9. UNITED STATES OF AMERICA (Submission received 8 August 2005) .....	19
10. UZBEKISTAN (Submission received 10 August 2005) .....	21

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\* This submission is supported by Bulgaria, Romania and Croatia.

PAPER NO. 1: AUSTRALIA

**Submission by Australia to the UNFCCC  
Scientific, Technical and Socio-Economic Aspects of Mitigation  
5 August 2005**

**Introduction**

The twenty-first session of the Subsidiary Body for Scientific and Technical Advice (SBSTA) invited Parties to submit their views on lessons learned from the mitigation workshops held to date and any future steps under this agenda item. Australia welcomes the opportunity to provide views to facilitate the ongoing consideration of these topics under this agenda item by SBSTA at its twenty-third session.

Australia notes that the mandate of this agenda item, decision 10/CP.9, requested SBSTA to initiate work at its twentieth session on scientific, technical and socio-economic aspects of mitigation, and to focus on exchanging information and sharing experiences and views among Parties on practical opportunities and solutions to facilitate the implementation of the Convention. The COP also requested SBSTA to report on its work in these areas to COP 11.

**Lessons Learned**

SBSTA's work under this agenda item has provided an opportunity for all Parties to share information about their actions to mitigate greenhouse gas emissions and discuss relevant issues. The three in-session workshops provided an informal setting which have facilitated an open and informative sharing of views and lessons learned between Parties. The input of other stakeholder' views into the workshops, including those of business, academics and think tanks, has been useful in broadening the range of issues and perspectives that SBSTA's work on mitigation has canvassed, and highlighted some of the practical work that is being done outside of the FCCC by these stakeholders on mitigation. Australia believes that it is important to continue to provide an avenue to engage with all Parties in a discussion about mitigation action.

Australia would like to highlight some of the key lessons learned from SBSTA's consideration of mitigation to date:

- Developed and developing countries share many common challenges in meeting their needs for energy, food security, economic development and environmental goals – but we know that the technical capacity of developing countries needs to be enhanced.
- The scale of emissions reductions needed to achieve climate stabilization is enormous and significant technological change is required to meet this challenge.
- Both the deployment of current technologies (including energy efficiency and renewables) and the development and deployment of new technologies is critical;
  - there are many currently available technologies and practices in both developed and developing countries that have the potential to reduce greenhouse gas emissions and contribute to sustainable development; and
  - the challenge is to overcome the barrier to broader application of these technologies and practices.
- There will be no single technology solution to solve climate change but rather a portfolio of technologies will be needed. The mix of approaches that works best for one country or region may not be best for another.

- Climate mitigation needs to be integrated into, and consistent with, broader sustainable development objectives as the most successful mitigation projects are often those that yield other benefits at the local level.
  - for example, the local health benefits of integrated measures which address both greenhouse gas emissions and air quality can outweigh the cost of these measures.
- The demand for energy and transportation is continuing to grow in all countries – particularly developing countries.
  - much of the infrastructure to support this demand is yet to be built and the choices we make now will affect long-term sustainable development and associated emissions levels.
- Fossil fuels will continue to play a role in meeting energy needs for the foreseeable future.
  - advanced fossil fuel technologies, and other technologies to reduce or capture carbon emission from fossil fuels will be an important component of climate mitigation strategies

To date, the workshops have highlighted that many Parties, both Annex I and non-Annex I, are undertaking a broad range of action that is consistent with national circumstances. Similarly, the agenda item maintains focus on practical lessons learned that benefit all and presenting co-benefits of mitigation action. For example, at the SBSTA 21 In-Session Workshop on Climate Change Mitigation, Brazil gave a presentation outlining the successful development, deployment and diffusion of biofuels into Brazil. The presentation from Brazil highlighted:

- That the consolidation of bio-ethanol as a source of energy in Brazil has created jobs as well as contributed to rural and industrial development.
- In addition to stimulating development, Brazil reported that considerable environmental advantage follows from the use of biofuels, as a result of the reduction of emissions from diesel-powered vehicles.

Although limited in terms of practical output, the broad range of action Parties have discussed in workshops has highlighted the scope of international cooperation on technology for climate change mitigation. Workshops have provided a forum for the presentation of technologies and initiatives that could be applied by other Parties, along with identifying opportunities for further cooperation and capacity building. On a broader scale, the mitigation agenda item provides a space within the SBSTA to discuss action Parties are taking on climate change mitigation outside the UNFCCC, such as through bilateral agreements and plurilateral technology initiatives.

Summaries from the Chair of the workshops have been useful in highlighting key themes and lessons learned in a non-negotiated and non-politicised manner. Australia suggests that the Chairs' summaries from the workshops provide the basis of SBSTA's report to COP 11.

### **Any Future Steps**

Although limited practical outputs have emerged from discussions thus far, Australia is keen to build upon progress to date to build a forum that focuses on identifying practical opportunities and solutions to facilitate the implementation of the Convention.

#### Future topics for discussion under agenda item

In order to progress discussion so as to obtain outcomes focusing on practical opportunities and solutions to facilitate the implementation of the Convention, Australia makes the following suggestions:

- Explore single topics that have demonstrable interest or benefits for all Parties (such as energy efficiency or agriculture) in depth over two or three sessions;
- Ensure that discussion does not focus upon policies and measures, but rather focuses upon identifying practical opportunities and solutions that Parties may choose to implement within their national sustainable development programs; and

- Making discussions more analytical to stimulate greater discussion and analysis during workshops, for example by inviting academics or experts to provide short papers on topics and asking Parties to respond.

To ensure best use of available time, and instead of negotiating the next session's work at each SBSTA, Australia also suggests that it may be useful at COP 11 to make decisions on topics for discussion through to SB 27.

Australia looks forward to reading other Parties' views and working constructively with others at SB 23.

PAPER NO. 2: CANADA

**Submission by the Government of Canada on  
Scientific, Technical and Socio-economic Aspects of Mitigation**

**Lessons Learned and Future Steps**

By its decision 10/CP.9, the Conference of the Parties requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) at its twentieth session to initiate its work on scientific, technical and socio-economic aspects of mitigation and to focus on exchanging information and sharing experiences and views among Parties on practical opportunities and solutions to facilitate the implementation of the Convention.

Decision 10/CP.9 also requested the SBSTA to report on its work in the areas contained in paragraph 1 above at its eleventh session.

To facilitate the work of the SBSTA, the UNFCCC secretariat organized three in-session workshops at SBSTA 20, 21 and 22, taking into account submissions by Parties and SBSTA conclusions from the preceding sessions regarding topics to be covered at the next session. Canada thanks the secretariat for its excellent work in this regard, and the Chairman of the SBSTA for his role in chairing them and providing helpful oral reports to the SBSTA.

In its conclusions contained in document FCCC/STSTA/2004/L.27, the SBSTA invited Parties to submit their views on lessons learned from the mitigation workshops held to date, and any future steps under this agenda item, and requested the secretariat to compile the submissions received by Parties into a miscellaneous document to facilitate the ongoing consideration of these topics under this agenda item by the SBSTA at its twenty-third session.

Additionally, in the conclusions of its twenty-second session, the SBSTA requested the secretariat to prepare a concise report on the topics presented at the workshops under this topic, covering the greenhouse gases, sectors, technologies, regions and socio-economic aspects and other factors addressed at the workshops. Canada welcomes the report of the secretariat contained in document FCCC/SBSTA/2005/INF.5 and notes in paragraph 10 that due to time constraints it was not possible to cover any of the mitigation issues in depth.

Canada appreciates the useful discussion that has taken place to date and believes that this agenda item can best serve the Parties by advancing it in a productive and practical fashion. Canada considers that at SBSTA23 it would be very useful to focus the discussion regarding the report to COP11 on consensus on forward steps to enhance the experience to date on this agenda item.

**Lessons Learned**

Canada considers that the workshops provided for a valuable exchange of information focused on practical opportunities and solutions. They covered a broad range of topics, regions and sectors, and highlighted mitigation actions that can be taken both within and outside the UNFCCC in both developed and developing countries - clearly demonstrating that there is no single solution to mitigating climate change, but rather a portfolio of approaches will be needed.

The importance of finding a way to reduce emissions in the face of growing energy demand, especially in developing countries, was highlighted, as was the fact that fossil fuels will continue to play a role in meeting energy needs, both globally and in many countries and regions into the foreseeable future.

The presentations highlighted many local and regional, as well as sectoral mitigation actions, and pointed to the fact that the mix of approaches that works best for one country or region may not be the best for another, and that national and local circumstances are important factors in mitigation decisions.

Many presentations also addressed or highlighted socio-economic benefits including co-benefits of mitigation actions including energy security, savings and reliability, poverty reduction, food security, local environmental benefits, air quality and health benefits, and economic development. Presentations also pointed to the fact that mitigation actions by some Parties can have spillover effects on other Parties.

Mitigation actions such as international technology cooperation, carbon capture and storage practices, energy efficiency actions, renewable energy portfolio standards, incentives, emissions trading and demonstration projects were all viewed as integral parts of the global mitigation effort.

The critical importance of technology in addressing the enormous scale of emissions reductions needed to address climate change emerged as a prominent theme. Several presentations addressed policies, barriers and factors influencing technology research and development, deployment and diffusion. Presentations also highlighted the number of critical players involved including governments, industry, and research organizations and stressed the need for partnerships among them.

#### Future Steps

Canada has found the practical nature of the discussions under this agenda item to be productive, and sees value in ensuring that the topics discussed remain practical going forward. While the approach of in-session workshops covering a broad spectrum of topics has been useful to date, it would perhaps be of benefit to focus our discussions more specifically. We consider that these submissions will facilitate our efforts in upcoming negotiations to focus our discussions on key areas of mitigation actions.

As part of our work under this item Canada sees value in retaining the key focus on enhancing technology research and development, deployment and diffusion efforts. Canada sees value in examining actions that can be taken collectively or individually within the UNFCCC to enhance technology development, deployment and diffusion.

In addition, some specific innovative technologies may warrant further attention, including carbon capture and storage, biotechnology and nanotechnologies.

Lessons learned and best practices regarding international cooperation and initiatives to enhance action in technology and energy efficiency are also areas for further consideration in future sessions. We also believe that there is as much to learn from our successes as from our failures in these areas.

Finally, it would be valuable to look more closely at approaches in specific sectors. In addition to energy and energy-intensive sectors, the areas of agriculture and forestry (for example, mitigation of deforestation emissions) warrant further examination. But while a focus on specific sectors and regional action is critical, it is also important to focus at a technical level on what actions can be taken more globally, individually or collectively, within and outside the UNFCCC, and how they can interact productively.

Canada views this agenda item as providing for an important, additional learning experience for all Parties going forward. We look forward to a productive discussion under this agenda item at SBSTA23 at the United Nations Climate Change Conference in Montreal.

PAPER NO. 3: CHILE

**Submission of Chile**

**Scientific, Technical and Socio-Economic Aspects of Mitigation of Climate Change  
August 05, 2005**

Transport and Deforestation

Chile expresses its gratitude to the UNFCCC Secretariat for the organisation of the In-session Workshops on Mitigation. These workshops gave insight on a number of mitigation options that could be taken into account in the development of future country policies, in order to reduce Climate Change Impacts.

Chile would like to express its views regarding some mitigation aspects that considers relevant, which have not been fully addressed:

1. According to scientific evidence, mitigation efforts needed to avoid anthropogenic interference in the climate system should be greater than current.
2. In this sense, it is desirable to design mitigation options based on different approaches. Thus, the national approach is complementary with the sectoral one, where emissions are treated according to the specific source of emissions or capture of GHG.
3. Sectors that currently show the highest rates of emission growth are transport and deforestation. According to IPCC projection scenarios as well as national evaluation studies, this trend will continue to grow if no precautionary measures to control emissions are taken now. On the other hand, these are two sectors that have experienced major difficulties in the development of effective mitigation options. In fact, in the CDM context, there are no transport and afforestation related methodologies yet approved by the CDM Executive Board. This situation is an example of the difficulties that these sectors are facing, which of course, are beyond the CDM context. It must be noted that co-benefits related to these sectors are very high and have been described widely in the literature.

For the reasons above, Chile requests all Parties to the UNFCCC to consider further discussions on transport and deforestation, with the aim of achieving a broad listing of feasible mitigation options in both sectors.

At the same time, Chile requests the UNFCCC Secretariat to consider these two topics in future agenda meetings. Prompt actions in transport and deforestation will lead to sound and feasible mitigation measures towards sustainable development.

PAPER NO. 4: CHINA

**China's Views on the Scientific, Technical and Socio-Economic  
Aspects of Mitigation**

1. Decision 10/CP.9 requested the Subsidiary Body for Scientific and Technological Advice, at its twentieth session, to initiate its work on scientific, technical and socio-economic aspects of impacts of, and vulnerability and adaptation to, climate change, and on scientific, technical and socio-economic aspects of mitigation, and to focus on exchanging information and sharing experiences and views among Parties on practical opportunities and solutions to facilitate the implementation of the Convention. Since SBSTA 20, three workshops have been organized under this agenda item, exploring various aspects of mitigation. China highly commends the Secretariat upon its organization of the three in-session workshops. Pursuant to the conclusion of SBSTA 21 on the mitigation agenda item, China would like to submit the following comments.
2. It is the consensus of the international community that technology plays a fundamental role in addressing climate change. It's essential to establish an international mechanism for technological cooperation for future actions to combat climate change. Technological cooperation includes technology research, development, transfer and diffusion.
3. Existing advanced technologies, if applied in large scale, could greatly reduce anthropogenic greenhouse gas emissions. However, due to various policy, institutional or technical barriers or barriers caused by existing Intellectual Property Rights regime, these technologies are not accessible or affordable to developing countries. It is important to remove these barriers in order to ensure a wider application of these technologies and future innovations.
4. It is important for the exporting countries to provide incentives for the export of such advanced technologies. Incentives could include export loans, export tax reduction or favorable policies to encourage the set-up of joint ventures to have equipments produced abroad, etc. The importing country should also provide necessary assistance and cooperation to facilitate the transfer of technologies.
5. In order to ensure the success of technology cooperation, it is recommended that developed countries establish a technology cooperation fund to provide financial support for technology R&D carried out jointly with their counterparts from developing countries.
6. Climate change can only be adequately dealt with in the context of sustainable development. Sustainable development is a broader concept and is the key to addressing all environmental issues, including climate change. Efforts to address climate change should contribute to sustainable development.
7. Socio-economic aspects of mitigation are closely related to people's daily life. Socio-economic impacts of these measures on people's daily life come to the fore when considering mitigation measures. Mitigation measures could only be feasible when they are cost-effective and contribute to poverty eradication and economic development.
8. During the three workshops, various aspects of mitigation were addressed, but have not been fully explored. It is highly desirable that the mandate of Decision 10/CP.9 for this agenda item be extended to future sessions. It is suggested that future discussions give further thoughts on how to enhance international cooperation on mitigation technology, including the possibility of establishing an

international cooperation mechanism, the main elements of this mechanism, identification of the various barriers to technology transfer and diffusion, ways and means to remove these barriers, the incentives needed for technology cooperation and the establishment of technology cooperation fund.

9. It should be further emphasized that the technical nature of this agenda item should be continued and no contentious political elements should be introduced into this process.

PAPER NO. 5: LUXEMBOURG ON BEHALF OF THE EUROPEAN COMMUNITY  
AND ITS MEMBER STATES

**SUBMISSION BY LUXEMBOURG ON BEHALF OF THE EUROPEAN COMMUNITY AND  
ITS MEMBER STATES**

**This submission is supported by Bulgaria, Romania and Croatia.**

**Brussels, 29 June 2005**

**Subject: Scientific, technical and socio-economic aspects of mitigation of climate change. Views on lessons learned from the mitigation workshops held to date and any future steps under this agenda item (document FCCC/SBSTA/2004/L.27)**

Luxembourg, on behalf of the European Community and its Member States, welcomes the opportunity to comment on the lessons learned from the mitigation workshops held to date and any future steps under this agenda item, as requested in document FCCC/SBSTA/2004/L.27.

**Summary**

The EU considers that the workshops have been very informative and have raised important issues. We will wish to build on some of the key issues arising during the last two years and address some other topics which we consider to be of strategic importance in dealing with climate change. In particular we suggest it would be beneficial to develop a structured programme of work on the scientific, technical and socio-economic aspects of mitigation of climate change. We also consider that this agenda item should be well integrated with the developing UNFCCC agenda and that more effort is made to engage with key international bodies and sectors that will have the capability to facilitate or deliver significant reductions in greenhouse gas emissions.

**The urgency of reducing global greenhouse gas emissions**

As noted by several speakers, evidence is growing that action on mitigation is needed urgently. In addition, the Academies of Sciences of the G8 countries and those of India, China and Brazil concluded recently that:

*“The scientific understanding of climate change is now sufficiently clear to justify nations taking prompt action. It is vital that all nations identify cost-effective steps that they can take now, to contribute to substantial and long-term reduction in net global greenhouse gas emissions.”*

The EU has consistently proposed that to avoid dangerous anthropogenic climate change global mean surface temperature should not rise by more than 2 degrees Celsius above pre-industrial levels. Stabilising greenhouse gas emissions concentrations in the atmosphere in such a way as to reach this objective will call for significant reductions in global greenhouse gas emissions over the next 50 years that go far beyond those already required by the Kyoto Protocol. Global joint efforts are required in the coming decades so as to shift to a low carbon economy and to influence key investments decisions (on energy infrastructure, urban development and other major investments) that would facilitate this transition and have a major influence on future emission pathways.

## **Lessons learned**

The mitigation workshops held to date have focused on practical opportunities and solutions and very useful exchanges of information have taken place. Several presentations have shown that there is considerable potential for emission reductions through the use of existing low emission technologies, but also indicated that the deployment and the process of innovation of new technologies needs to be speeded up. The importance of international cooperation in this context was also stressed (Bradley and Socolow).

It was also highlighted that policy frameworks have an important role in providing long-term stable investment frameworks, in spurring the development and deployment of climate-friendly technologies, and that investment decisions in the short term will affect ability to reduce emissions in the long-term (Rubins and Azar).

Thirdly it was repeatedly reported that lowering greenhouse gas emissions offers considerable co-benefits for sustainable development: e.g., security of energy supply, health, air-quality (e.g. Thorne, Cifuentes, Mathur, Burgos).

## **Future steps**

To contribute to the wider development of the overall UNFCCC work programme, the EU would like SBSTA to develop this agenda item so as to take a more structured and comprehensive view of the scientific, technical and socio-economic aspects of mitigation of climate change. We believe that the most efficient way to do so is to initiate a programme of work that would offer opportunities to commence action, spur cooperation between Parties and with other international institutions, and produce concrete deliverables that could inform and assist the future work of the UNFCCC. It would also facilitate SBSTA's consideration of the latest scientific analysis in this area.

Our priorities for a future programme of work on mitigation of climate change include:

- a) the further development of the issues noted above, in particular:
  1. the investment challenge or how to channel financial investment decisions, principally for long-term investments in, e.g., housing, transport, infrastructure;
  2. the innovation challenge relating to technology development, deployment, transfer and diffusion, including the role of international cooperation and frameworks of push and pull policies to achieve significant market penetration for relevant low or no carbon technologies;
  3. the integration challenge or how to develop policy frameworks for integrating mitigation into relevant policy areas, including the linkage to sustainable development.
- b) consideration of emission pathways, technology roadmaps and deployment as well as mitigation scenarios required to avoid dangerous climate change so to build synergies and address conflict with other environmental and development goals. This includes the assessment of the mitigation challenge and related pathways, the costs and the benefits, including the co-benefits, the regional emission projections and their sustainability and the potentials of mitigation options and policies.

In this context, the engagement of key representatives of relevant international institutions and of civil society (business sectors, environmental NGOs, trade unions, ...) is important considering their capability to raise awareness of climate change needs in their areas of responsibility and integrating climate change considerations into routine decision making.

The EU proposes that the IPCC TAR and Special Reports should inform the discussion on the above work items since there is much in these reports that has not yet been fully explored by the UNFCCC. Therefore, we suggest that the IPCC be invited to participate as appropriate in future activities under this agenda item.

The EU also recalls that linkages between this agenda item and that on the scientific, technical and socio-economic aspects of impacts of, and vulnerability and adaptation to, climate change are relevant and should be enhanced.

We look forward to hearing the views of other Parties and to discussing these issues with them at SBSTA 23.

PAPER NO. 6: NEW ZEALAND

**New Zealand submission on scientific, technical and socio-economic aspects of mitigation of climate change**

This submission responds to the initiation from SBSTA22 to provide views on lessons learned from the mitigation workshops held to date and any future steps under this agenda item (FCCC/SBSTA/2004/13, paragraph 22 refers).

New Zealand wishes to highlight the utility of the mitigation agenda item to date and some of the key messages that it has brought forward. This agenda item:

- provides for open and informal discussion amongst all Parties
- highlights the actions that Parties are taking within and outside of the UNFCCC
- highlights the important co-benefits of mitigation actions that are consistent with sustainable development priorities
- illustrates the clear benefits of international cooperation

New Zealand is keen to see this agenda item continue. We believe that it has been a useful forum in which all Parties can engage in an open and informal discussion about mitigation options and lessons learned. The modalities could be many and varied (workshops, presentations, involving industry and NGO experts).

We see the need to continue technical level and practical discussions on mitigation action. Some general principles that need to be continued include:

- The role of mitigation action over the near term that does not foreclose options of stabilising GHGs at low levels
- The role of best currently available technology to reduce emissions and avoid lock-in to inefficient (and hence long-term more costly) infrastructure
- Identifying the barriers to technology development and deployment
- Assessment and incorporation of mitigation co-benefits
- Establishment of mitigation frameworks that ensure fairness and broad and balanced participation by all major emitters

Many sectors/areas for action that are of potential benefit to all parties have been identified, but we have not yet explored these in detail. e.g. energy efficiency, demand and supply, agricultural activities.

The next step should involve identifying practical opportunities for action that Parties could take individually or collectively (consistent with their national development priorities). One option would be to explore several key sectors and activities in greater depth (perhaps 2 or 3 sessions on each issue). It would be appropriate to identify areas of focus at SBSTA23 for the next two years so that Parties do not have to spend significant time negotiating topics for the next session at each subsidiary body meeting.

This would help Parties to identify:

- barriers to greater uptake of existing opportunities,
- how to remove these barriers,
- how to take advantage of opportunities,

- how to evaluate short-term mitigation actions in the long-term context, and
- how to work better in cooperation.

New Zealand would also be happy to see a process that draws on the experience from other key organisations and bodies e.g. IEA, FAO, OECD, UNDP, transnational and national businesses, and from activities within and outside of the UNFCCC.

PAPER NO. 7: SAUDI ARABIA

**SAUDI SUBMISSION ON**  
**“SCIENTIFIC, TECHNICAL AND SOCIO-ECONOMIC ASPECTS OF MITIGATION”**

Saudi Arabia would like to thank the UNFCCC Secretariat for the successful preparation of all of the in-session workshops on scientific, technical and socio-economic aspects of mitigation. We welcome the opportunity to submit our views on lessons learned from the mitigation workshops held to date and possible future steps under this agenda item as referenced in Paragraph 22 of document FCCC/SBSTA/2004/13 to facilitate the ongoing consideration of these topics under this agenda item by SBSTA at its twenty-third session.

**I. lessons learned from the in-session workshops**

1. The fact that mitigation measures undertaken by Annex I will cause changes in international trade that lead to adverse impacts on many developing countries has been well established
  - IPCC TAR as well as Expert Workshops and research and publications in the scientific literature support this conclusion
  - Oil exporting countries suffer from several types of adverse trade effects
    - i. Higher energy costs prices resulting from taxes on petroleum products in Annex B countries will result in higher prices for goods produced by industries in Annex B countries, and thus higher import costs for developing countries to import these goods
    - ii. Lower world demand significantly reduce earnings of oil exporting countries from their major exports
  - Many other developing countries will on balance suffer adverse trade effects
    - Negative effects on all developing countries include higher prices paid for goods imported from Annex B countries and lower prices received for their agricultural, natural resource and service exports
2. Sectoral measures are also likely to have adverse impacts on many developing countries
  - The largest adverse impacts are on oil exporting countries, no matter what type of sectoral measure is chosen
  - Sectoral measures that target the transportation sector have a disproportionately large impact on oil exporting countries
  - Sectoral measures will have adverse impacts on non-Annex B countries even if they are costless to the country that adopts them.
3. Carbon limits on the transportation sector also cause disproportionately large economic burdens on Annex B countries that already have high fuel taxes.
  - Sectoral policies that exempt transportation from carbon limits reduce costs to Annex B countries and impact on oil exporting countries
  - It is possible to replace the revenues from current fuel taxes with revenues from a tax on the carbon content of all fuels or from auction emission allowances
  - The policy of replacing fuel taxes with carbon levies is also beneficial to both Annex B countries and oil exporting countries

4. There are ways and means to minimize impacts on oil producing countries if sectoral measures were taken:

- Redesign of sectoral policies to minimize impacts on oil exporting countries
  - Exempt transportation sector from carbon limits
  - Replace fuel taxes with revenue-neutral carbon taxes or revenues from auctioning allowances
  - Remove subsidies and/or incentives for coal and other forms of energy
  - Emphasize carbon capture and sequestration
- Preferential tariff and trade treatment
- Increased technology transfer and foreign direct investment to help diversify adversely affected economies

## **II. Future steps under the scientific, technical and socio-economic aspects of mitigation agenda item**

Saudi Arabia believes that any exchange of information regarding this new agenda item shall be done within the context of Article 4 of the Convention, where commitments for Annex I and non-Annex I have been clearly outlined and identified. Differentiation between Annex I and non-Annex I is an important element for any scientific or technical assessment under mitigation. Non-Annex I commitment under mitigation must be confined to Article 4, Paragraphs 1 and 7 of the Convention and should be in accordance to their specific national and regional development priorities, objectives and circumstances, without introducing any new commitments, taking into account the provisions of Article 4, Paragraphs 4, 5, 7, 8 and 9 of the Convention. Any development on mitigation shall be aimed at ANNEX-I meeting their commitment under the Convention in particular Article 4 paragraphs 2 and 7. Discussions under this agenda item must be limited to the mandate of SBSTA as described in Article 9 of the Convention.

Saudi Arabia believe that an essential part of this agenda item is to advance robust solutions and opportunities to minimize the negative impacts of Annex I Parties response measures on non-Annex I Parties including negative spillover effects from potential mitigation measures taken by Annex I parties. This agenda item needs to further elaborate on the work of the IPCC-TAR and WGIII on spillover effects and impacts of response measures. This agenda item shall advance options to reduce impact of response measures and spillover effects

The cost of mitigation must be addressed in such a manner as to minimize the potential economic impacts on developing countries that are heavily dependent on fossil fuel export. Developing countries have raised concerns about the potential climate change related energy policies undertaken by developed countries to mitigate greenhouse gas emissions.

Saudi Arabia believes that any exchange of information under this agenda item must focus on identification of measures that would reduce emissions, and at the same time, have minimal effects on oil producing developing countries, such as removal of subsidies, restructuring the tax systems, enhancement of sinks, and CO2 capture and storage technologies. Hence, SBSTA needs to promote the exchange of information on **win-win** type policies and measures.

PAPER NO. 8: SWITZERLAND

**SBSTA 23**

**Scientific, technical and socio-economic aspects of mitigation of climate change  
Submission by Switzerland**

Mitigation workshops have proven to be highly valuable in fostering dialogue and exchange of experience both among Annex-I Parties as well as between Annex-I Parties on the one hand and non-Annex-I Parties on the other hand. It is important to exchange experiences, given the wide array of mitigation measures, whose relevance, applicability and effects may change depending on national circumstances.

Mitigation measures increasingly carry an international dimension, as exemplified by flexible mechanisms or technology transfer, which makes it essential to pursue international dialogue in this field.

Future workshops ought to be orchestrated in such a manner to increasingly foster interactive dialogue between Parties. Also, workshops may be divided into several sub-sessions, each of which would be dedicated to specific mitigation issues and sectors such as non-CO<sub>2</sub> gases, international marine and air transport, electricity generation, cement, aluminum and steel sectors, road transport and renewable energy. This would help to focus and deepen the debate.

In its work on mitigation, the SBSTA should aim at identifying research needs on scientific, technical and socio-economic aspects of mitigation efforts and experiences by Parties.

It should also provide, as appropriate, relevant information on mitigation to international fora dealing with GHG emitting sectors such as the European Conference of Ministers of Transport, etc. in order they consider how they can contribute to the help the Convention and the Kyoto Protocol in mitigating climate change.

Finally, the SBSTA should aim – with the help of relevant international organizations such as the OECD and stakeholders, including the business sector – at identifying robust findings that could serve as good examples and practices to be recommended to Parties, as appropriate and taking into account national circumstances.

PAPER NO. 9: UNITED STATES OF AMERICA

**Submission of the United States**  
**FCCC/SBSTA/2004/13**  
**Views on the Scientific, Technical and Socio-economic Aspects of Mitigation**  
**August 5, 2005**

The Twenty-first Session of the Subsidiary Body for Scientific and Technical Advice in December 2004 (SBSTA-21) invited Parties to submit their views on the lessons learned from the mitigation workshops held to date and any future steps under this agenda item. The United States welcomes the opportunity to provide its views.

We found the in-session workshop on mitigation at SBSTA-22 to be informative and useful. Several presentations highlighted that both developed and developing countries are taking actions that meet their sustainable development needs and reduce GHG emissions. Presentations also highlighted the importance of cooperation between governments, within public/private partnerships, as well as between companies, in facilitating technology research, development and deployment.

**Lessons Learned**

Workshops under this agenda item have provided a good opportunity for Parties and stakeholders to exchange information and views on issues in a relatively informal setting. The focus on practical opportunities and solutions has provided a space for all Parties to present their views and has helped to build understanding of opportunities and commonalities among Parties on important issues.

Throughout the workshops, presentations have highlighted that developed and developing countries alike are taking a variety of mitigation actions that reflect their national interests and circumstances. Discussions under this agenda item have helped all countries learn from each other's experiences with mitigation.

*Some lessons we have taken from the mitigation workshops:*

- Developed and developing countries share common challenges in meeting all of their economic, social and environmental needs. To be successful, climate mitigation should be integrated into, and made consistent with, broader sustainable development objectives, such as economic development, energy security, public health, and local environmental protection.
- Tools to facilitate consideration of the socio-economic benefits and impacts of potential mitigation actions are important for evaluating and selecting appropriate mitigation actions.
- Achieving climate stabilization will require the development and deployment of a portfolio of breakthrough technologies and more efficient deployment and application of current technologies. No single technology will achieve this objective.
- Many available technologies and practices in both developed and developing countries can help reduce greenhouse gas emissions and contribute to sustainable development. More effort is needed to overcome the domestic and international barriers to broader application of these technologies and practices.
- Although technology transfer is primarily a private sector function, governments can play a role in helping industry overcome barriers to technology deployment and development. Government engagement is particularly appropriate for technologies where the risk, time-scale or magnitude of investment is high, or where international cooperation is needed.
- In many countries, fossil fuels will continue to supply a significant part of energy needs for the foreseeable future. It is important to develop and implement cost-effective advanced fossil fuel, energy efficiency, and carbon capture and storage technologies.

### **Next Steps**

The United States believes further SBSTA work on mitigation could be useful if this work continues to follow the approach taken so far. The mandate of 10/CP.9 – exchanging information and sharing experiences and views among Parties on practical opportunities and solutions to facilitate implementation of the Convention – has been instrumental in establishing an open space for productive discussions. If further work is agreed, this decision should continue to serve as its foundation.

With regard to priority areas of focus, we note that a continuing theme of recent discussions is that countries generally consider their climate actions in the context of broader social and economic goals. Many actions that further the UNFCCC's objective are taken for other reasons (e.g., energy security considerations, economic competitiveness) and climate change is often not the dominant objective. Actions that address the more immediate development needs in ways that also mitigate climate change may in many cases yield the greatest dividends. This is true both in the case of national level policies and activities of individual entities. SBSTA's discussions on mitigation can help to clarify the interrelationships between greenhouse gas mitigation and other societal objectives, and to bring more focus on approaches that satisfy both short-term and longer-term sustainable development goals. We believe using a "multiple benefits" framework as the organizing principle for any further consideration of greenhouse gas mitigation activities provides the greatest commonality between the interests of all Parties.

In future workshops, SBSTA could focus in-depth on areas and approaches that might: (a) provide the greatest opportunities for achieving multiple benefits, including adaptation benefits, and on identifying obstacles to achieving those benefits, and (b) advance mitigative capacity.

Approaches under (a) might include, for example:

- Non-CO<sub>2</sub> Gases – Mitigation technologies and approaches to reduce emissions of, for example, methane, nitrous oxide, and high global warming potential gases (perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF<sub>6</sub>)).
- Energy efficiency – Opportunities for, and barriers to, implementing energy efficient technologies.
- Sustainable development in forestry and agriculture – Sustainable productivity of the food and forestry sectors to meet human demands, conservation of habitat and biodiversity, non-wood forest products, sustainable agricultural practices, reducing and avoiding deforestation, and combating illegal logging.
- Urban design and planning- alternative transportation fuels and technologies; green building design; mass transit/multi-modal transportation issues and planning; innovative financing schemes.

In considering these areas, it might be useful to discuss:

- Tools to analyze multiple benefits (e.g., sustainable development, socio-economic, environmental, health), and strategies/measures for mitigation, and lessons on how to develop projects and policies that maximize such benefits.
- Institutions & governance – Aspects of good governance and institutions that can help resolve barriers to economic growth and technology transfer, and advance mitigative capacity.
- Innovative financing mechanisms - Innovative options to finance technology development, deployment and transfer, focusing on expanding the engagement of the private financial community, including the use of creative public/private partnerships.
- The role of partnerships (public/public, public/private, and private/private) – Collaborative arrangements to develop and disseminate less greenhouse gas-intensive technologies and the development and enhancement of endogenous capacities.

PAPER NO. 10: UZBEKISTAN

**Opinion of the Republic of Uzbekistan on the lessons experienced within the framework of the held Workshops on the issues of the aftereffects mitigation and of any future steps within this paragraph**

The Republic of Uzbekistan supports the efforts of SBSTA Secretariat on the estimation of results of the held workshops in the inter-session period during 19-22 sessions (FCCC/SBSTA/2004/13, item 22)

The summary report (FCCC/SBSTA/2005/INF.5) prepared by Secretariat on the held workshops on the mitigation of the aftereffects of the climate change systematized the issues considered at these meetings and the character of the social and economical aspects and measures on the aftereffects mitigation. This facilitated the preparation of this presentation significantly.

Since 19 SBSTA Session at each session the workshops are being held on scientific, technical and social and economical aspects of mitigation of the climate change aftereffects. During these workshops the most important issues – economy sector with the highest emission of green-house gases, technologies of the aftereffects mitigation, obstacles faced during realization, social and economical aspects of the mitigation of the climate change aftereffect. It is valuable to note that the gradual detalization and comprehensive consideration of the arising problems have taken place while the representatives of the different world regions shared their experience in situation improvement.

In particular, a considerable attention was paid to the obstacles faced during the solution of problems of the aftereffects mitigation. Their detalization, experience of solution are a good experience school for the workshop participants.

The content of the workshops was interesting and comprehensive. They considered the innovation technologies on the reduction of the green-house gases emission in the main “polluting” economy fields – power production and agriculture and “wastes” sector. They added to our knowledge of the modern methods and projects and directions of technologies improvement.

For the Republic of Uzbekistan which is a country with the economy in transition, the exchange of experience in the solution of the problem of economical growth and development, employment of population and food safety in the different world regions, including Asia, was the most important one.

The priority issues for our country are the updating of power, including the use of the renewable energy sources such as wind energy use, use of the photo-element batteries, biomass. By the expert estimations, the gross potential of the renewable energy sources in our country is about 51 bln. tons of the oil equivalent, about 0,6 bln. tons of the oil equivalent is used (0,3%). In Uzbekistan the active measures are carried out in this direction and the first results are already manifested in the social and ecological aspects. In 2000 the first photo-electric systems were manufactured with the amorphous silicon of three types installed in one of the livestock farms. The exploitation of these systems during 1,5 years in the desert and semi-desert areas demonstrated their technical reliability and presented a good advertising for population who had never had any access to electricity. The tests demonstrated that the program of de-centralized electrification which could be a component of the National program on the solar energy use should be elaborated.

The Republic of Uzbekistan has started the use of the photo-electric schemes for the remote areas of Uzbekistan. The analysis of the republican market has shown that for the satisfaction of the consumers needs a wide diversity of PV-systems is needed. For example, for the remote livestock farms 100-500 Wt photoelectric systems are needed. For the solution of the other tasks both high- and low-power photo-electric systems will be required. It is worth to mention that the technical level of the operating installations of the solar heat supply and energy supply created in the Republic of Uzbekistan does not correspond to the best world standards. The main reasons are the absence of the special helio-technical equipment, instruments, means of automatic regulation as well as of the absence of the needed financing.

Solid domestic wastes can be considered as the possible source of the bio-gas production. The conducted estimations showed that for the republic it is effective to use 2,2 mln. of solid domestic wastes.

The active silt collected in the urban treatment plants for the sewage cleaning can be used as the potential source of biogas production. Total amount of the active silt is more than 1 mln. tons.

A number of the western investors – Germany, Switzerland - show their interest to the set up of plants for the biogas production in Uzbekistan. However, before more comprehensive considerations are necessary to evaluate the availability of the raw material and possibilities of adaptation of the existing technologies on the biogas production to the local conditions.

Several independent evaluations were conducted in Uzbekistan for estimation of the potential of the reduction of the green-house gases emission and portfolios of projects were prepared on their emission reduction. At present feasibility study is ready for the project “On utilization of bio-gas in Akhangaran disposal tip” of Clean Development Mechanism which be implemented by the city authorities of Tashkent and Japanese ‘Shimidzu’ corporation.

We think that is expedient to continue the exchange of experience in the field of the mitigation of the climate change aftereffects at the inter-session workshops of SBSTA with the emphasis on the realization of the flexible Kyoto mechanisms in this direction.

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