



AD HOC GROUP ON THE BERLIN MANDATE  
Second session  
Geneva, 30 October - 3 November 1995  
Items 3 and 4 of the provisional agenda

**STRENGTHENING THE COMMITMENTS IN ARTICLE 4.2(A) AND (B)  
CONTINUING TO ADVANCE THE IMPLEMENTATION OF ARTICLE 4.1**  
**Annotated compilation of information relevant to the Berlin Mandate process**

Note by the secretariat

CONTENTS

	<u>Paragraphs</u>	<u>Page</u>
I. INTRODUCTION .....	1 - 4	2
II. SCOPE OF THE NOTE AND ACTION BY THE AD HOC GROUP ON THE BERLIN MANDATE .....	5 - 8	3

Annex

Compilation of relevant literature .....		4
A.I. Reports submitted by Parties .....	1 - 3	4
A.II. Report by the Intergovernmental Panel on Climate Change	4	5
A.III. Reports by other United Nations agencies .....	5 - 29	5
A.IV. Reports by other intergovernmental organizations ...	30 - 51	12

Appendix

Additional reports by international organizations .....		18
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## I. INTRODUCTION

1. At its first session, the Ad Hoc Group on the Berlin Mandate (AGBM) pointed to the wide array of currently available information relevant to the Berlin Mandate process, and to the analysis and assessment in particular. The entities responsible for such information were invited to make this information available to the AGBM to assist in the process (FCCC/AGBM/1995/2, para. 19 (g) and (h)). The AGBM requested the secretariat to prepare for the second session an annotated compilation of information relevant to the Berlin Mandate process (FCCC/AGBM/1995/2, para. 19 (h)(ii)). This annotated compilation will be updated for future sessions as additional information becomes available to the secretariat.

2. In compiling relevant material, the secretariat has taken the following approach:

(a) Information compiled in document A/AC.237/83 is not explicitly repeated in this document but should be considered as implicit in the present compilation;

(b) Information currently under consideration by the Intergovernmental Panel on Climate Change (IPCC) has not been included; it will be included in subsequent editions once approved and available to the secretariat. Some information on the IPCC Special Report, 1994 has been included in this compilation;

(c) Reports submitted by Parties pursuant to a communication by the Executive Secretary dated 13 September 1995 have been taken into consideration in the preparation of this compilation;

(d) Approximately 30 intergovernmental organizations were invited to submit relevant material. Any information received has been taken into consideration, taking into account paragraphs 3 and 5 below;

(e) In a limited number of cases, information from intergovernmental organizations which is available in the reference unit of the climate change secretariat but which had not been specifically identified by the organization concerned, has also been included.

3. The secretariat was hampered by a number of constraints in the preparation of this document, principally the limited time between the first and the second sessions. In addition, it sometimes proved difficult to obtain copies of documents in time to draft annotations.

4. One non-governmental organization, the Edison Electric Institute, provided copies of a number of studies it considered relevant to the Berlin Mandate process.

## **II. SCOPE OF THE NOTE AND ACTION BY THE AD HOC GROUP ON THE BERLIN MANDATE**

5. The annotations consist of descriptions of the contents of compiled documents: they are not intended to summarize the information provided in the document but to give an indication of the issues addressed. In some cases, the annotations were provided by the submitting organization; in others they were prepared by the secretariat. In no case should they be interpreted as representing the views of the secretariat. Some documents that have been made available are not annotated but are only listed (see appendix). In some cases, this was for technical reasons or shortage of time; in others, it was because the scope of the document was too limited.
6. The compilation should not be seen as an exhaustive listing of relevant documents but as an initial attempt to assist the AGBM in identifying and considering the wide range of information relevant to the Berlin Mandate process that is currently available. The secretariat continues to welcome suggestions for additional relevant information which could be used in the preparation of any future editions of the annotated compilation.
7. The AGBM is invited to make use of this compilation at its second session as background information to the discussion under items 3 and 4 of the provisional agenda.
8. The AGBM is further invited to provide guidance to the secretariat on the approach used and on the preparation of any further editions. Bearing in mind the resource-intensive nature of this work and the benefits derived therefrom, the AGBM may wish to indicate the priority to be attached to it.

Annex

**COMPILATION OF RELEVANT LITERATURE**

**A.I. REPORTS SUBMITTED BY PARTIES**

**Protecting the earth: A status report with recommendations for a new energy policy**, German Bundestag (ed.), Bonn, 1991. 2 Vols. Third Report Of The Enquete Commission Of The 11th German Bundestag "Preventive Measures To Protect The Earth's Atmosphere".

1. This two-volume, 1600-page study was prepared by the Enquete Commission of the German Bundestag. It examines both national and international measures designed to reduce energy-related emissions of greenhouse gases in a number of sectors. Issues such as energy efficiency, renewable energy, fuel substitution and nuclear power are addressed, reflecting, in some instances, a range of opinions. The study includes some analysis of the potentials of individual emission reduction measures until 2005 and 2050.

**Climate change - threat to global development: acting now to safeguard the future**, German Bundestag (ed.), Bonn: Economica Verlag; Karlsruhe: Verlag Müller, 1992. First Report Submitted By The Enquete Commission Of The 12th German Bundestag "Preventive Measures To Protect The Earth's Atmosphere".

2. This study, a continuation of earlier work (see above), while focusing on the science of Climate Change and on possible impacts, also includes some discussion of quantified objectives and time-frames. It also reviews some measures being implemented or proposed at the national, regional and global levels. Particular attention is paid to the energy, transport forestry and agricultural sectors.

**Protecting our green earth: how to manage global warming through environmentally sound farming and preservation of the world's forests**, German Bundestag (ed.), Bonn: Economica Verlag, 1995. Third Report Submitted By The Enquete Commission Of The 12th German Bundestag "Preventive Measures To Protect The Earth's Atmosphere".

3. This study examines the contributions of the forest and agriculture sectors to Climate Change in terms of sectoral greenhouse gas emissions. In addition, it discusses the possible impacts of Climate Change on these sectors. Ways and means of reducing emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O in from agriculture are analysed. Much of the discussion relating to forests is addressed to the international context, including that with regard to possible mitigation actions. The study includes differing views of Commission members where these existed.

## **A.II. REPORT BY THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), JOINTLY ESTABLISHED BY THE WORLD METEOROLOGICAL ORGANIZATION (WMO) AND THE UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)**

**Summaries for Policymakers and Other Summaries**, Intergovernmental Panel on Climate Change, Geneva (Switzerland), 1994. See 3.1 A Report of Working Group III of the IPCC: an evaluation of the IPCC IS92 emission scenarios, pp. 41 - 46.

4. Six scenarios provide estimates of direct and indirect greenhouse gas emissions, by source, for four regions over the period 1990 - 2100 and cover a wide range of values for key input assumptions. This evaluation deals mostly with non-intervention scenarios that do not assume any climate policies to reduce greenhouse gas emissions (although they may assume emission controls for other environmental reasons). The recommendations of the working group include the following:

- New reference scenarios are needed to explore a variety of economic development pathways.
- Policy scenarios are needed to explore a variety of climate policies, instruments and programmes, already developed or yet to be developed, and their results in terms of greenhouse gas emission reductions.
- Endogenous capacity building is crucial. Special effort is needed to improve the capabilities of researchers to analyse and develop scenarios, especially in developing countries and in countries with economies in transition.

## **A.III. REPORTS BY OTHER UNITED NATIONS AGENCIES**

### **A. Department for Policy Coordination and Sustainable Development (DPCSD)**

**Report of the Secretary-General on "Structural change in the world economy: implications for energy use and air emissions". (A/47/388)**

5. The report is a topic oriented study on selected aspects of long-term structural change in the world economy, energy use and consequent emissions of CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub>. Projections of production and air emissions to the year 2020, under different scenarios for economic growth, make particular reference to the energy-intensive economic sectors. Future changes in the world economy are determined by the projected trends in the level and composition of investment, foreign trade and consumption, and by the assumed interregional patterns of moderated technology infusion. These trends in turn determine different rates of growth of economic activities, and thus of energy and materials requirements and levels of air emissions via the inter-industry relationships among and within regions.

**Report of the Secretary-General on "Changing global energy patterns". (E/C.13/1994/2)**

6. The report analyses changes in global energy consumption and production patterns. Energy consumption is expected to increase at higher rates in developing countries than in the developed market economies. By the year 2020, the share of developing countries in the consumption of fossil fuels may reach 48 per cent of the total world consumption, from the current level of 28 per cent. High energy intensities are expected to continue in developing countries in view of the higher growth rates in economic output. A rapid rise in global energy consumption, especially of fossil fuels, gives rise to environmental concerns.

**Report of the Committee for New and Renewable Sources of Energy and on Energy for Development on its first session. (E/1994/25)**

7. The United Nations Committee for New and Renewable Sources of Energy and on Energy for Development, at its first session, discussed, *inter alia*, energy and sustainable development, including the linkages between energy and development; environment; security and finite resources; issues concerning overall energy development, with particular emphasis on developing countries; new and renewable sources of energy; and efficient utilization of energy resources; and development of strategies for future energy systems compatible with sustainable development and policies for their implementation.

**Report of the Committee for New and Renewable Sources of Energy and on Energy for Development on its special session. (E/1995/25)**

8. The United Nations Committee for New and Renewable Sources of Energy and on Energy for Development met in a special session in order to provide advice on energy for rural development to the Commission on Sustainable Development at its third session, to initiate and encourage a process of environmentally sound energy transition in rural communities, from unsustainable energy sources to structured and diversified energy sources, by making available alternative new and renewable sources of energy. The Committee concentrated on recommendations for sustainable energy in the rural areas of developing countries, including small island developing States.

**Report of the Secretary-General on "Changing consumption and production patterns". (E/CN.17/1995/13)**

9. The report identifies the environmental, social and economic impacts of present production and consumption patterns, including a summary of recent projections and studies, as well as an analysis of policy measures aimed at promoting sustainable production and consumption patterns with a focus on the use of economic instruments. It also reviews recent experiences of a selected number of countries and organizations in changing unsustainable production and consumption patterns, including measures taken toward reduction of CO<sub>2</sub> emissions.

**B. United Nations Conference on Trade and Development (UNCTAD)**

**Combating global warming: possible rules, regulations and administrative arrangements for a global market in CO<sub>2</sub> emission entitlements**, Tietenberg, T.; Victor, David; Sandor, Richard; Cole, Joseph; Kelly, Eileen, Geneva (Switzerland), 1994, UNCTAD/GID/8

10. This paper suggests that a global warming agreement be concluded among an initial group of participants (the United States, the European Union and Japan). The agreement would specify the conditions under which other signatories could participate in a proposed tradeable CO<sub>2</sub> entitlement programme. It argues that economic history and theory, as well as the early experience of the SO<sub>2</sub> entitlement programme, suggest that such a programme will provide the least cost solution to the global warming problem.

11. An essential component of effective implementation is the development of clear legal and statutory authority for the international trading and transfer of CO<sub>2</sub> emission credits. An international clearing house must also be established. Trading in CO<sub>2</sub> emission credits will naturally gravitate to the most efficient, least cost trading forum. The design of an international market place should encourage competition between the various trading forums, such as organized exchanges, electronic trading systems and over-the-counter mechanisms.

12. The paper makes recommendations for the development of a global market for the trading of CO<sub>2</sub> emission credits in order to stimulate debate and promote further development of the concept.

**Controlling carbon dioxide emissions: the tradeable permit system**, United Nations Conference on Trade and Development, Geneva (Switzerland), 1995, UNCTAD/GID/11

13. Studies on tradeable CO<sub>2</sub> emission entitlements focus on the themes of feasibility and implementation. Extensive research has helped to clarify the former, while the latter has become a matter of overriding concern for Governments, international organizations, and non-governmental organizations, all seeking practical, cost-efficient mechanisms to deal with global and environmental problems and their financing.

14. The studies carried out by the UNCTAD secretariat have shown that tradeable permits are both an efficient means of controlling CO<sub>2</sub> emissions at minimum cost, and an effective mechanism for transferring resources to developing countries and to countries in transition to help them to contribute to the international effort to abate emissions of greenhouse gases. They have also revealed that a viable implementation strategy should begin with a simple pilot scheme based on the joint implementation of commitments, a facet of the Framework Convention on Climate Change, and evolve gradually to a more complete system on the basis of 'learning by doing'. Some of the major emitters need to act as pioneers.

### **C. United Nations Environment Programme (UNEP)**

**Climate change and energy efficiency in industry**, United Nations Environment Programme, Industry and Environment Office; International Petroleum Industry Environmental Conservation Association, Paris; London, 1991

15. This publication is devoted to climate change and industry. In addition to a number of reports on activities from several organizations and countries, it includes short articles on subjects such as clean coal technologies, energy efficiency, climatic architecture, power development, innovative energy technologies and the insurance industry.

**UNEP greenhouse gas abatement costing studies: analysis of abatement costing issues and preparation of a methodology to undertake national greenhouse gas abatement costing studies: Phase two report**, United Nations Environment Programme, Roskilde (Denmark), 1993

and

**UNEP greenhouse gas abatement costing studies: analysis of abatement costing issues and preparation of a methodology to undertake national greenhouse gas abatement costing studies: Phase two report: Appendix II: Country summaries**, United Nations Environment Programme, Roskilde (Denmark)

16. The UNEP project on developing a common methodological approach for assessing the costs of limiting greenhouse gas emissions was initiated in 1991 in a bid to improve understanding of the subject, and to help lay the basis for national studies of the economic issues which would be accepted as objective, accurate and comparable between countries.

17. Economic studies of the issues have spanned a wide range, with some claiming that reducing CO<sub>2</sub> emissions would cripple economies and seriously damage growth in developing countries. Others have suggested much more modest impacts and even net economic gains arising from increased energy system efficiency and reduced vulnerability to volatile fossil fuel prices. Furthermore, it has been evident for a long time that national economic assessments would come to play an important role in international negotiations, and that the methodologies used, and the comparability of different national studies, would become important issues.

**Climate change and industry**, United Nations Environment Programme, Industry and Environment, Paris, 1994 (*Industry and Environment; Vol.17, No.1*)

18. This publication provides initial guidance to industrial management and Governments in exploring the potential benefits of voluntary agreements to improved energy efficiency. It is essentially an introduction to the process of energy auditing, supported by practical examples. The approaches described draw on the extensive experience of energy efficiency management in the international oil industry, but the content focuses mainly on the small- to



medium- sized operations in many sectors of industry, particularly in developing countries. This report does not address the question of energy efficiency in the energy generation industry or in the heavy industrial sector.

**Transport and the environment**, United Nations Environment Programme, Industry and Environment, Paris, 1993 (*Industry and Environment, Vol.16, No.1-2*)

19. The articles in this issue explore the theme of sustainability, as stressed in Agenda 21, and its implications on the transport industry. The articles reflect the diversity of opinion on policy and technical options. They underline the need for more intense dialogue between all parties, at the international and national level.

#### **D. United Nations Economic Commission for Europe (UNECE)**

**Manual on financial engineering: sources of finance for energy efficiency projects** (1994), ENERGY/WP.4/R.1

20. Many international institutions have financial resources available for economic development in economies in transition, including energy efficiency and environmental components. In this manual the major institutions for financial help and bilateral aid programmes as well as organizations which provide technical assistance, are discussed. The manual is designed to provide a key source of information about the sources of finance for energy efficiency projects.

**Manual on business planning: how to construct a business plan for energy efficiency projects** (1994), ENERGY/WP.4/R.2

21. This book is intended to answer questions likely to be raised by potential investors, sponsors and entrepreneurs considering an approach to financial institutions. The manual aims to provide information on financing methods adapted to the practices of the market economy for countries in the process of transition to a market economy, and who may have no tradition of these practices, or the requirements needed to obtain money to finance their projects in a commercial fashion.

**The energy efficiency 2000 project and energy-efficiency demonstration zones in eastern and central Europe** (1994), Natural Resources Forum 18 (4) 287-292

22. The concept behind the project is that environmental conditions throughout Europe can be enhanced by the introduction of energy-efficient technology in central and eastern Europe as existing energy using systems wear out and are replaced. The project has produced useful information on policies, technologies and databases on experts and businesses working in this field. In order to achieve this objective the project was designed to produce a professional network, information exchange, a list of technologies, pilot projects and the identification of energy-efficient practices.

**Strategies and policies for air pollution abatement: 1995 review, UNECE, ECE/EB.AIR/44**

23. This publication provides detailed information in a tabular form on: ambient air quality standards, fuel quality standards, and emission standards applied by Parties to the Convention on Long-range Transboundary Air Pollution. It publishes detailed data on emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds, methane, carbon monoxide and carbon dioxide. These data are provided for the years 1980 to 1994 and in the form of projections up to the year 2010. The different sources of emissions are separated and maps show their geographic distribution over Europe. The report also contains maps of Europe showing critical loads of acidity, an indication of different environmental sensitivities in different parts of Europe.

**Draft guidelines for a common strategy regarding transport and the environment (1995), ECE/RCTE/PC/10/REV.3**

24. The Governments of the ECE countries have undertaken to pursue the objective of sustainable transport development by helping to reduce the negative impact of transport on the environment and to promote the most environment-friendly modes of transport. In order to achieve this objective, transport development policies and strategies compatible with the protection of the environment and of health will need to take into account environmental, economic and social costs and benefits and to permit the internalization of external costs using appropriate instruments.

25. This document contains the draft guidelines as agreed upon by member States. These guidelines provide the basis for Governments of the ECE countries to draw up transport policies and programmes containing various types of measures, for example, promoting stricter measures on vehicle emissions in urban and other densely populated areas and ensuring that transport of dangerous goods and hazardous wastes is made safer.

**Energy efficiency demonstration zones in central and eastern Europe: preparatory assistance phase (RER/94/G41), (1995)**

26. Following on from the development objective, the immediate objective discussed in this paper is to implement viable energy efficiency strategies in three demonstration zones - the aim being to demonstrate, on a city-wide scale, the combined effect of energy-efficient technology, energy pricing policy, favorable tariff structures, advisory services, information campaigns, metering, monitoring and controls, energy audits, tax incentives, grants and government-guaranteed loan schemes, international technical assistance and trade development programmes. The intention is to replicate successful measures nationally once proven on a limited scale.

**Integrated assessment modelling of nitrogen compounds (1995)**, UNECE, EB.AIR/WG.5/R.49, pp. 9-14

27. This report identifies conclusions and recommendations on issues relating to the implications for air pollution as discussed at the workshop on restructuring of energy systems. Specifically, the conclusions provide projections of energy developments in central and Eastern Europe, the potential effects of restructuring energy systems, energy pricing, and costs and benefits.

**International legal instruments on the protection of the environment in the field of transport (1995)**, ECE/RCTE/PC/9/REV.1

28. This document contains a first list of ECE agreements and regulations in force which establish specific international requirements and/or limits for the reduction of the environmental impacts of road transport. It also lists a number of related ECE resolutions in the field of inland water transport. With regard to other modes, a first list of relevant legal instruments, resolutions and norms has also been elaborated by the secretariat on the basis of information obtained from other international organizations.

#### **E. United Nations Economic Commission for Africa (UNECA)**

**African conference on policy options and responses to climate change: conference statement**, Stockholm Environment Institute; African Centre for Technology Studies, Stockholm; Nairobi, 1995. Also available in French (Record Number 1788)

29. The conference considered that Africa's ecosystems and socio-economic systems are most valuable to possible adverse effects of climate change. It is a statement relating to the potential African positions on climate change, the building of capacity in various areas, the additional funds required by African countries in their contribution to international climate change mitigation efforts, the access to appropriate technology, and the question of joint implementation.

#### **A.IV. REPORTS BY OTHER INTERGOVERNMENTAL ORGANIZATIONS**

##### **A. Organisation for Economic Co-operation and Development (OECD)**

**Markets for tradeable CO<sub>2</sub> emission quotas: principles and practice**, Chichilnisky, Graciela; Heal, Geoffrey, Paris, 1995, (*Economics Department Working Papers No. 153*), OCDE/GD(95)9

30. This paper reviews a range of issues relating to tradeable carbon dioxide emission quotas (TEQs). It considers the economic principles on which they are based and compares them with the alternative carbon abatement policies, and reviews many aspects of how tradeable quotas would be implemented in practice. It explains why the issues are on the agenda and how they relate to current issues such as joint implementation.

31. It argues that the principal alternative to a TEQ regime is the adoption of carbon taxes: salient aspects of two policy approaches are compared and combinations of these analysed. The allocation of TEQs among participating countries is questioned and issues connected with the implementation of TEQs, analysing questions associated with design and management of a TEQ market, addressed.

**Energy efficiency and the environment**, OECD, Paris, 1991

32. This study reviews past energy efficiency developments and policies and examines the future scope for energy efficiency. It examines in detail the technical and market factors that are likely to determine the cost-effectiveness of energy efficiency improvements in a range of end-use sectors. In addition, on the basis of available country-specific studies of the scope and costs of energy efficient strategies, it is possible to assess the macroeconomic impact of measures designed to accelerate the penetration of energy efficient technologies. Finally, the study points to areas for further work, particularly in the terms of improved data and information on energy use and on the cost-effectiveness of energy efficiency investments.

**Dialogue with vehicle manufacturers: joint declaration**, ECMT, Paris, 1995, CEMT/CM(95)5/FINAL

33. The Council of the European Conference of Ministers of Transport (ECMT) and the vehicle manufacturing industry agreed on a Declaration on reducing CO<sub>2</sub> emissions from passenger vehicles in ECMT countries. The objectives of this voluntary agreement are to reduce fuel consumption of new cars and better manage vehicle use. The Declaration identifies a number of measures to be taken by Government (for example, provision of a policy framework, encouraging new technologies and road traffic informatics and improving fleet maintenance and replacement), by industry (for example, developing, manufacturing and marketing new cars), and by Government and industry jointly (for example, marketing, technology development, public education and information). The Declaration also provides for follow-up activities, including trend analysis and reporting.

## **B. International Energy Agency (IEA)**

### **World energy outlook**, International Energy Agency, Paris, 1995

34. The 1995 edition of the *World Energy Outlook* adds to the IEA's ongoing analysis of global energy markets until the year 2010. This year's edition presents two alternative scenarios: one which foresees capacity constraints which will put upward pressure on energy prices; and a second which examines the potential for energy savings to reduce the growth rate of energy demand. In both cases, world energy demand will grow over the next fifteen years, but more slowly than the rate of economic growth. The importance of the global transportation sector is examined in detail. The study also provides in-depth regional analysis of longer term energy prospects in OECD North America, South and Central America, Africa and South Asia. These regional studies follow on the work presented in last year's outlook on the rapidly changing Asia-Pacific regions and Central and Eastern Europe. The Outlook includes some discussion related to the environmental implications of the energy demand projections. This includes projections of increasing CO<sub>2</sub> emissions to 2010, with some regional breakdowns. There is also some discussion of world biomass consumption and renewable energy sources.

### **Energy policies of IEA countries: 1994 review**, International Energy Agency, Paris, 1995

35. This 1994 edition contributes to the IEA's ongoing analysis of countries' energy policies and market developments. It reviews recent trends and developments in energy demand and supply, efficiency, technology and environment. This year's edition includes: critical reviews of all 23 IEA member countries, in-depth reviews of Finland, Ireland, Italy, Japan, Luxembourg and Switzerland; a synthesis report highlighting major energy policy developments and market trends in IEA member countries and an overview of significant energy developments elsewhere in the world; and an analysis of trends in key energy indicators over a twenty year period.

### **Energy technologies to reduce CO<sub>2</sub> emissions in Europe: prospects, competition, synergy (Petten, 11-12 April 1994)**, International Energy Agency, Paris, 1995

36. Even if currently available technologies are taken up to a significant extent, they can only be expected to provide a partial solution to the longer term concerns about global climate change. The development and deployment of new and improved technologies will be essential if atmospheric concentrations of greenhouse gases are to be reduced significantly. This volume of proceedings explores the prospects in Europe for a wide range of new and improved energy technologies, and examines the interrelationships between those technologies over the longer term under a scenario of drastically reduced CO<sub>2</sub> emissions.

**Global climate change: policy statement and potential to reduce carbon dioxide emissions: technical report**, International Energy Agency, Coal Industry Advisory Board, Paris, 1991

37. This document consists of two parts: a policy statement on the issue of global climate change and a technical report on the potential to reduce carbon dioxide emissions. The policy statement focuses on key principles to be taken into account in developing policies for dealing with global climate change policy, while the technical report identifies coal technologies that can bring substantial reductions in carbon dioxide emissions. It also quantifies the potential percentage reductions that can be achieved if these technologies are widely deployed.

**Energy prices and taxes**, International Energy Agency, Paris, 1995

38. This quarterly publication provides statistics on prices and taxes on all energy sources and main consuming sectors and selected data for some non-OECD countries. It includes details on recent energy price developments, import and export prices, price indices for crude oil, steam coal, caking coal and natural gas and trade regulations and duties.

39. It provides energy end-use prices, taxes and price indices in national currencies for all OECD countries and a number of non-OECD countries for a number of products including automotive fuels, light fuel oil, heavy fuel oil, electricity, natural gas, steam coal, caking coal, and, where applicable, prices for industry, electricity generation, and households.

**Industry attitudes to steam cycle clean coal technologies: survey of current status**, International Energy Agency, Paris, 1995

40. This study reviews the future prospects for coal-based power generation, the current and likely future development of pulverized fuel-firing and atmospheric fluidised bed combustion units, and the future of steam cycle technologies, based on an industry survey. Unlike other advanced clean coal technologies, these technologies use a steam cycle (but no gas turbine) to convert heat into power. The study shows that modern pulverized fuel plant can be both clean and efficient, and is likely to be the technology chosen by utilities throughout the world for the next generation of coal-fired power plant.

41. This is the second of a proposed series of three publications. The first *Industry attitudes to combined cycle clean coal technologies - survey of current status* (IEA 1994) covered the current status of coal-based generation using combined cycle technologies (integrated gasification combined cycle and pressurized fluidised bed combustion). The third study in the series (to be published soon) will bring together the results and identify the way forward for advanced clean coal technologies.

**Reconciling transportation, environmental and energy issues** (Budapest, 30 May - 1 June 1994), International Energy Agency, Paris, 1995

42. Striking a balance to meet the crucial objectives of transportation efficiency, environmental protection and energy security was the theme of a conference held in Budapest in 1994, where public and private-sector actors joined forces to seek ways to develop and implement public transportation options that are clean, fuel-efficient and environmentally sound.

*Forthcoming:*

**Climate change policy initiatives. Volume II: non-OECD countries 1994-1995 update**, International Energy Agency, Paris, 1995

43. This book will provide recent information on the development of national policies to limit energy-related emissions of CO<sub>2</sub> and other greenhouse gases of some 20 non-OECD countries (major developing countries and countries with economies in transition). It will give details on these countries' energy sectors, as well as trends in energy supply and consumption and related CO<sub>2</sub> emissions.

**Comparing energy technologies**, International Energy Agency, Paris, 1995

44. This publication considers the state of the art in methodologies for assessing and comparing energy technologies, and the strengths and weaknesses of current practice. It presents experts' reports on energy R&D approaches and assessment criteria strategies in Canada, Denmark, France, Italy, Japan, the Netherlands, the United Kingdom, the United States and the European Union.

**Policy aspects of renewable energy in OECD and non-OECD countries**, International Energy Agency, Paris, 1995

45. This report will give a global view of policy prospects for different renewable energy sources. It will provide a focused assessment of current trends and the scope for future exploitation of renewables in OECD countries and non-OECD regions. Policy options that have been employed to increase the use of renewable energies, as well as approaches that might be appropriate for the future will be examined, taking into account the changing nature of energy policy and the structure of energy markets, especially with respect to electricity.

**Voluntary actions for energy-related CO<sub>2</sub> abatement**, International Energy Agency, Paris, 1995

46. This study, the second in the series *energy and environment policy analysis*, will focus on the use of voluntary approaches in IEA countries as a policy tool to achieve energy and environmental goals, and their potential contribution to achieving, *inter alia*, greenhouse gas abatement objectives. The report will include a detailed annex on all IEA member voluntary programmes and initiatives in this area.

### **C. Organization of Petroleum Exporting Countries (OPEC)**

**Energy taxation and economic growth**, Seymour, Adam; Mabro, Robert, Vienna, 1994  
(*Pamphlet Series; No. 30*)

47. This report focuses on energy taxation, especially with regard to oil, as a policy tool in developing countries. However, it also addresses to some extent taxation issues related to environmental externalities, including policy responses to climate change. It also includes some case studies of energy, particularly oil, taxation in developed countries, including environmental taxes. The study's main thesis is that the case for oil taxation is being promoted without due consideration for the central role of energy in economic growth and development and its importance for the welfare of citizens.

### **D. Asian Development Bank (ADB)**

**A study of a least-cost greenhouse gas abatement strategy project (ALGAS)**, ADB

48. The objective of the ALGAS project is to help reduce emissions of greenhouse gases (GHG) from the Asian region. Key ALGAS activities include:

- Developing and improving the national and regional capacity to prepare baseline inventories of GHG emissions and sinks to meet the standards and requirements of the United Nations Framework Convention on Climate Change;
- Improving the reliability of GHG emission and sink inventories for the region;
- Developing national and regional capacities to identify, formulate, and analyse GHG abatement initiatives for several Asian countries (China, India, Indonesia, Republic of Korea, and Thailand);
- Developing and implementing national and regional least-cost GHG abatement strategies through the preparation of national mitigation plans and a portfolio of viable, least-cost GHG abatement projects that will dovetail the country's economic development strategy.



**Climate change in Asia: executive summary**, Qureshi, Ata (ed.); Hobbie, David (ed.), Manila: Asian Development Bank, 1994 (Regional Study on Global Environmental Issues)

and

**Climate change in Asia: thematic overview**, Qureshi, Ata (ed.); Hobbie, David (ed.), Manila: Asian Development Bank, 1994 (Regional Study on Global Environmental Issues)

49. These studies investigate the implications of climate change for coastal zones, agriculture, forestry, water resources, energy and other vital sectors, in eight countries of the Asian Pacific region, namely, Pakistan, India, Sri Lanka and Bangladesh in south Asia and Indonesia, Malaysia, Viet Nam and the Philippines in south-east Asia. A volume containing a summary of these findings has been devoted to a thematic overview of climate change implications and responses for agriculture, forestry and land use, water resources and coastal areas, national inventories of greenhouse gases mitigation measures and socioeconomic impacts.

#### **E. South Pacific Regional Environment Programme (SPREP)**

**Summary report of the first coastal protection meeting**, South Pacific Regional Environment Programme; South Pacific Applied Geoscience Commission, Apia (Western Samoa), 1994, First Coastal Protection Meeting, 21-23 February 1994, Apia, Western Samoa

and

**Summary report of the second coastal protection meeting**, South Pacific Regional Environment Programme; South Pacific Applied Geoscience Commission, Suva (Fiji) - Second Coastal Protection Meeting, 16-20 May 1994, Apia, Suva, (Fiji)

50. SPREP in collaboration with South Pacific Applied Geoscience Commission convened two workshops to examine the provision of adequate coastal protection systems in the region. The meeting considered options ranging from managing natural coastal systems through to the use of man made structures and barriers to prevent coastal erosion and degradation. Among its recommendations, the participants identified the need for an integrated coastal zone management programme to combat the problems identified.

*Forthcoming:*

51. SPREP is soon to compile a regional synthesis of eleven studies. These studies concentrate on the coastal environment, and include recommendations on minimizing the impact of sea-level rise on lagoons and coastal and near-shore land areas, but also focus on protecting greenhouse gas sinks such as oceans, coral reefs and forests. The reports also identifies areas where the strengthening of human resources may be required through recruitment of staff, training existing staff, or outside assistance.

Appendix

**ADDITIONAL REPORTS BY INTERNATIONAL ORGANIZATIONS**

**A. Asian Development Bank (ADB)**

**Climate change in Asia: Malaysia**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**Climate change in Asia: India**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**Climate change in Asia: Indonesia**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**Climate change in Asia: Philippines**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**Climate change in Asia: Pakistan**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**Climate change in Asia: Bangladesh**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**Climate change in Asia: Sri Lanka**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**Climate change in Asia: Viet Nam**, Qureshi, Ata (ed.), Manila: Asian Development Bank, 1994, (*Regional Study on Global Environmental Issues*)

**National response strategy for global climate change: People's Republic of China: final report of the technical assistance project**, Argonne National Laboratory, East-West Center; Tsinghua University, Argonne (II), 1994.

**Preparation of a national strategy on global climate change: Thailand**, Thailand Development Research Institute; Thailand Environment Institute, Bangkok, 1993 - Draft final report

## **B. Food and Agriculture Organization of the United Nations (FAO)**

**FAO Yearbook 1993: Forest Products 1982-1993 = FAO Annuaire 1993: Produits Forestiers 1982-1993 = FAO Anuario 1993: Productos Forestales 1982-1993**, Food and Agriculture Organization, Rome, 1995, (*FAO Statistics Series; No. 122, FAO Forestry Series; No. 28*)

**FAO Yearbook 1994: Production = FAO Annuaire 1994: Production = FAO Anuario 1994: Produccion**, Food and Agriculture Organization, Rome, 1995 - (*Vol. 48; FAO Statistics Series; No. 125*)

**Global climatic change and agricultural production: direct effects of changing hydrological and plant physiological processes**, United Nations. Food and Agriculture Organization. Interdepartmental Group on Climate Change; United Nations Environmental Programme, Rome, 1993. Highlights from an Expert Consultation on Global Climatic Change and Agricultural Production: Direct Effects of Changing Hydrological and Plant Physiological Processes, 7-10 December 1993, Rome

**World agriculture: towards 2010: an FAO study**, Alexandratos, Nikos (ed.), Rome: Food and Agriculture Organization; Chichester: John Wiley and Sons, 1995

## **C. Organisation for Economic Co-operation and Development (OECD)**

**Background paper prepared for the OECD workshop on sustainable consumption and production: clarifying the concepts**, 2-4 July 1995, Rosendal, Norway, OECD, Paris, 1995

**Climate Change: designing a practical tax system**, OECD, Paris, 1992

**Climate Change: designing a tradable permit system**, OECD, Paris, 1992

**A comparison of carbon taxes in selected OECD countries**, Haugland, T., Paris: OECD, 1993, (*OECD Monographs Series*)

**The costs of cutting carbon emissions: results from global models**, OECD, Paris, 1993

**Developed countries views concerning environmentally sound technology transfer and information**, Yakowitz, H., Paris, OECD, 1994. A paper presented to the UNCSO workshop on the promotion and access to and dissemination of information on environmentally sound technologies, Seoul, Korea

**The economic costs of reducing CO<sub>2</sub> emissions**, OECD, Paris, 1992, (*OECD Economic Studies; No. 19*)

**Economic instruments and climate change**, OECD, Paris, 1993

**Electric vehicles: technology, performance and potential**, OECD, IEA, Paris, 1993

**Energy conservation policies and technologies in Japan: a survey**, OECD, Paris, 1994

**Environment-economy policy integration: a progress report**, OECD, Paris, 1995  
(forthcoming)

**Environmental taxes in OECD countries**, OECD, Paris, 1995

**Global warming: economic dimensions and policy responses**, OECD, Paris, 1995

**Global warming: the benefits of emission abatement**, OECD, Paris, 1992

**Greenhouse gas emissions: the energy dimension**, OECD, Paris, 1991

**Internalising the social costs of transport**, OECD, ECMT, Paris, 1994

**Motor vehicle pollution: reduction strategies beyond 2010**, OECD, Paris, 1995

**OECD government experts meeting on climate change: annotated agenda and issues paper**, OECD, Paris, 1993, Env/epoc(93)13

**OECD workshop on development assistance and technology co-operation for cleaner industrial production in developing countries**, OECD, Paris, 1994, OECD/GD(95)42

**Promoting cleaner production in developing countries: the role of development assistance**, OECD, Paris, 1995 (Forthcoming)

#### **D. United Nations Conference on Trade and Development (UNCTAD)**

**Accounting for sustainable forestry management: a case study**, United Nations Conference on Trade and Development, Geneva, 1994, UNCTAD/DTCI/4

#### **E. United Nations Economic Commission for Latin America and the Caribbean (UNECLAC)**

**Climate Change and water management in Latin America and the Caribbean**, Economic Commission for Latin America and the Caribbean, Santiago, 1993, LC/R.1274

**Ecosystem and socioeconomic response to future climatic conditions in the marine and coastal regions of the Caribbean Sea, Gulf of Mexico, Bahamas, and the north-east coast of South America**, Maul, George A., Kingston: United Nations Environment Programme. Caribbean Environment Programme, 1993, (*CEP Technical Report; No. 22*)

**La convencion marco del cambio climatico: una aproximacion a la luz de las prioridades de America Latina y el Caribe. Parte II: los instrumentos internacionales para la proteccion de la capa de ozono. Parte III: los posibles mecanismos de transferencia de tecnologia**, Comisión Económica Para América Latina y el Caribe, Santiago, 1994 , LC/R.1367/ADD.1

**La convencion marco del cambio climatico: una aproximacion a la luz de las prioridades de America Latina y el Caribe. Parte I: el escenario actual**, Comisión Económica Para América Latina y el Caribe, Santiago, 1994, LC/R.1367

**Possible climatic changes in Latin America and the Caribbean and their consequences**, Economic Commission for Latin America and the Caribbean, Santiago, 1990, LC/L.580(SEM.56/4)

**Report on the meeting of the expert group responsible for studying the possible effects of climate change on the water resources of Latin America and the Caribbean**, Economic Commission for Latin America and the Caribbean, Santiago, 1994, LC/R.1371(SEM.72/3). Unofficial translation of document LC/G.1798(SEM.72/3)

#### **F. United Nations Environment Programme (UNEP)**

**1994 report of the Economics Options Committee: 1995 assessment**, United Nations Environment Programme. Montreal Protocol on Substances that Deplete the Ozone Layer, Nairobi, 1994

**Environmental effects of ozone depletion: 1994 assessment**, United Nations Environment Programme. Montreal Protocol on Substances that Deplete the Ozone Layer, Nairobi, 1994

**Scientific assessment of ozone depletion: 1994**, United Nations Environment Programme. Montreal Protocol on Substances that Deplete the Ozone Layer, Nairobi, 1994

#### **G. United Nations Educational, Social and Cultural Organisation (UNESCO)**

**Impact of expected climate change on mangroves**, UNESCO; United Nations Environment Programme, Paris, 1993, (*UNESCO Reports in Marine Science ; No. 61*).- Report of the First Meeting of the UNEP-UNESCO Task Team, 1-3 June 1992, Rio De Janeiro, Brasil

**International meeting of scientific and technical experts on climate change and oceans, 19-21 July 1991, Malta**, UNESCO. Intergovernmental Oceanographic Commission, Paris, 1992 - IOC/STECCO/3

**IOC committee for the Global Ocean Observing System (GOOS): First Session, 16-19 February 1993, Paris**, UNESCO, Paris, 1993, IOC/GOOS-I/3

**Les zones arides dans les programmes de l'UNESCO**, Skouri, Mohamed (ed.), Paris: UNESCO, 1995

**Second international meeting of scientific and technical experts on climate change and the oceans, 6-8 October 1994, Malta**, UNESCO. Intergovernmental Oceanographic Commission, Paris, 1995, IOC/STECCO-II/3

**Sixth planning meeting on world climate programme - water (Wallingfor, 1-5 March 1993)**, World Meteorological Organization; UNESCO, Geneva, 1995 (*World Climate Applications and Services Programme; WCASP-29, WMO/TD; No. 609*)

**Using archival resources for climate history research**, Dhérent, Catherine; Petit-Renaud, Gérard, Paris: UNESCO. International Hydrological Programme, 1994, SC-94/WS.6; IHP-IV

**World conference on natural disaster reduction: scientific and technical poster session, 23-27 May 1994, Yokohama, Japan**, Italian National Agency for New Technology, Energy, and the Environment; UNESCO, Rome, 1994, Abstract of Sessions

#### **H. World Meteorological Organization (WMO)**

**Annual bulletin on the climate in WMO region VI - Europe and Middle East, 1994**, World Meteorological Organization. World Climate Data and Monitoring Programme; European Climate Support Network; Deutscher Wetterdienst, Geneva, 1994

**Atmospheric model intercomparison project (AMIP): intraseasonal oscillations in 15 atmospheric general circulation models (results from an AMIP diagnostic subproject)**, World Climate Research Programme, Geneva: World Meteorological Organization, Geneva, 1995, (*World Climate Research Programme; WCRSP-88*), WMO/TD - NO. 661

**Clivar: a study of climate variability and predictability: science plan**, World Climate Research Programme. Clivar Scientific Steering Group, Geneva: World Meteorological Organization, Geneva, 1995, (*World Climate Research Programme; WCASP-29*) WMO/TD - No. 690

**Cloud-radiation interactions and their parameterization in climate models, 18-20 October 1993, Camp Springs, USA**, World Climate Research Programme, Geneva: World Meteorological Organization, Geneva, 1994, (*World Climate Research Programme; WCRSP-86*), WMO/TD - No. 648

**Data and information management plan: version 1.0**, World Meteorological Organization. Global Climate Observing System, Geneva, 1995, (*Global Climate Observing System Report; No. 13*), WMO/TD - No. 677

**Plan for space-based observations: version 1.0**, World Meteorological Organization. Global Climate Observing System, Geneva, 1995, (*Global Climate Observing System Report; No. 15*), WMO/TD - No. 684

**Plan for the global climate observing system (GCOS): Version 1.0**, World Meteorological Organization. Global Climate Observing System, Geneva, 1995, (*Global Climate Observing System Report; No. 14*), WMO/TD - No. 681

**Proceedings of the workshop on Global Coupled General Circulation Models, 10-12 October 1994, La Jolla, USA**, World Climate Research Programme, Geneva: World Meteorological Organization, Geneva, 1995, (*World Climate Research Programme; WCRSP-87*), WMO/TD - No. 655

**Report of the WMO workshop on the measurement of atmospheric optical depth and turbidity, 6-10 December 1993, Silver Spring, USA**, World Meteorological Organization. Global Atmosphere Watch, Geneva, 1995, (*Environmental Pollution Monitoring and Research Programme Report Series; No. 101*), WMO/TD - No. 659

**Report of the workshop on UV-B for the Americas, 22-26 August 1994, Buenos Aires, Argentina**, World Meteorological Organization. Global Atmosphere Watch, Geneva, 1995. (*Environmental Pollution Monitoring and Research Programme Report Series; No. 100*), WMO/TD - No. 650

**Report of the WMO meeting of experts on global carbon monoxide measurements, 7-11 February 1994, Boulder, USA**, World Meteorological Organization. Global Atmosphere Watch, Geneva, 1995, (*Environmental Pollution Monitoring and Research Programme Report Series ; No. 98*), WMO/TD - No. 645

**Report of the Fourth WMO meeting of experts on the quality assurance/science activity centers (QA/SACS) of the global atmosphere watch, jointly held with the first meeting of the coordinating committees of IGAC-GLONET and IGAC-ACE, Garmisch-partenkirchen, Germany, 13-17 March 1995**, World Meteorological Organization. Global Atmosphere Watch, Geneva, 1995, (*Environmental Pollution Monitoring and Research Programme Report Series; No. 104*), WMO/TD - No. 689

**Report of the Meeting of Experts on the WMO World Data Centres, 17-18 February 1995, Toronto, Canada**, World Meteorological Organization. Global Atmosphere Watch, Geneva, 1995, 17 P.: Tab., Fig. (*Environmental Pollution Monitoring and Research Programme Report Series; No. 103*), WMO/TD - No. 679

**Scientific assessment of ozone depletion: 1994**, World Meteorological Organization. Global Ozone Research and Monitoring Project, Geneva, 1995, (*Report No. 37*)

**Status of the WMO Global Atmosphere Watch Programme as at 31 December 1993.**

World Meteorological Organization. Global Atmosphere Watch, Geneva, 1995,  
(*Environmental Pollution Monitoring and Research Programme Report Series; No. 99*),  
WMO/TD - No. 636

**The global climate system review: climate system monitoring, June 1991 -**

**November 1993**, World Meteorological Organization. World Climate Data and Monitoring  
Programme; United Nations Environment Programme, Geneva, 1995

**The changing ozone layer**, Bojkov, Rumen D.- Geneva (Switzerland): World Meteorological  
Organization; United Nations Environment Programme, 1995

**WMO statement on the status of the global climate in 1994**, World Meteorological  
Organization, Geneva (Switzerland), 1995 - WMO - No.826

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