UNITED
NATIONS

Framework Convention on
Climate Change

Distr.
GENERAL

FCCC/NC/10
21 November 1995

Original: ENGLISH

EXECUTIVE SUMMARY OF THE
NATIONAL COMMUNICATION OF

ITALY

submitted under Articles 4 and 12 of the
United Nations Framework Convention on Climate Change

In accordance with decision 9/2 of the Intergovernmental Negotiating Committee of the Framework Convention on Climate Change (INC/FCCC), the interim secretariat is to make available, in the official languages of the United Nations, the executive summaries of the national communications submitted by Annex I Parties.

Note: Executive summaries of national communications issued prior to the first session of the Conference of the Parties bear the symbol A/AC.237/NC/___.

GE.95-64206

Copies of the national communication of Italy may be obtained from the following address:

Ministry of the Environment
Department for Air Pollution, Acoustic Problems and Industrial Risks
Via della Serratella in Laterano 33 (4^0 piano)
Rome

Fax: (39-6) 7725-716

INTRODUCTION

1. The first Italian National Communication to the United Nations Framework Convention on Climate Change is the consequence of the commitments which Italy took on under the agreements and conventions signed at Rio de Janeiro during the Earth Summit in June 1992.

2. Even before Rio de Janeiro, Italy had taken on a major role among the developed countries, within the European Community and in the negotiations started by the United Nations for a global convention on climate change.

3. The joint declaration by the European Economic Community (EEC) Councils of Ministers for the Environment and Energy on 29 October 1990 was promoted and adopted under Italy's chairmanship. In this declaration, the EEC countries acknowledged the joint goal and commitment for preventing climate changes and reducing greenhouse gas emissions, starting with carbon dioxide.

4. In particular, the commitment adopted on a community level for the stabilization of carbon dioxide emissions at 1990 levels by 2000 requires the individual member States to adopt programmes and initiatives for environment-friendly reconversion and energy efficiency in industry, energy conversion, transport, services and in the non-industrial sector. It also requires the member States to protect and extend carbon dioxide sinks, with particular reference to forests.

5. The contents and commitments of the Community declaration are the main basis for the negotiation for the Framework Convention on Climate Change.

6. During the negotiations, in order to foster the clarification of the complex environment and energy problems involved, the United Nations appointed Italy to organize and host in October 1991, an International Symposium on the promotion and transfer of improved technology for energy efficiency and environment compatibility to developing countries and Eastern Europe (ESETT 1991).

7. The symposium was attended by 45 countries from all continents, and the results of this work are an integral part of the final contents of the Framework Convention on Climate Change signed at Rio de Janeiro.

EEC DECISIONS AND THE CONVENTION ON CLIMATE CHANGE. ITALY'S COMMITMENTS

8. The decisions by the EEC Councils of Ministers for the Environment and Energy on 29 October 1990 reconfirmed in the subsequent joint Councils on 13 December 1991 and 23 April 1993, recalled in the declarations of the member States attached to the United Nations Framework Convention on Climate Change ratified by the Italian Parliament on 15 January 1994 and confirmed in the decision by the European Union Council of Ministers for the Environment on 23 March 1993 on the "Monitoring mechanism of CO_2 emissions and other greenhouse gas emissions" require the following measures in the short term:

- The preparation and publication of the national programme for the limitation of CO_2 emissions;

- The drawing up of a report on the emissions of other greenhouse gases not subject to the Montreal Protocol and the corresponding measures for limitation.

9. Law N. 65 of 15 January 1994 ratifying the United Nations Framework Convention for Climate Change calls for an allocation of 1,500 million lire for 1994 and 1995 for monitoring and updating national programmes for the stabilization of greenhouse gas emissions, for Italian collaboration with the Intergovernmental Panel on Climate Change (IPCC), for funding the Aid Fund for Developing Countries and the Fund for running the Convention Secretariat.

NATIONAL Programme FOR THE REDUCTION OF CO_2 EMISSION

10. The initial draft of the National Programme for limiting CO_2 emissions was submitted to the EEC by the Ministry for the Environment in May 1992. The final text was approved by the Interministerial Committee for Economic Planning on 25 February 1994.

11. This revision enabled a better illustration of the basic data for the estimate of 1990 emissions, an updating of the energy scenario and a more accurate definition of the technological, regulatory and fiscal measures available for the stabilization of emissions in 2000.

FIRST NATIONAL COMMUNICATION TO THE FRAMEWORK CONVENTION ON CLIMATE CHANGE

12. The part of the text of the first national communication to the Framework Convention on Climate Change regarding carbon dioxide is based on the information and programmes contained in the National Programme for limiting CO_2 emissions.

13. In accordance with the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC/FCCC) guidelines for drawing up the first communications by the countries in Annex I, it contained the following:

- An estimate of national emissions for 1990 of CO_2, CH_4, N_2O, NO_x, CO, NMVOC, and of HFC, CF_4 and C_2F_6;

- A preliminary assessment of CO_2 sinks related to changes in land use and forests in Italy;

- The identification of some measures for the limitation of the emissions of other greenhouse gases not covered by the Montreal Protocol;

- All the information required under the INC Guidelines for the description of policies, programmes and measures, the estimate of emissions and the absorption of greenhouse gases, the calculation of the effectiveness of the measures, the vulnerability of Italian territory to the resulting climatic changes and the measures to be adopted as a consequence, the Italian cooperation initiatives regarding climate changes, research and systematic observation initiatives, information and training programmes.

ITALIAN GREENHOUSE GAS EMISSIONS IN 1990

14. The estimates of emission rates for the main greenhouse gases (CO_2, CH_4, N_2O) and the precursors (NO_x, CO, NMVOC) presented here are based on the ENE estimates for the CORINAIR 1990 Inventory of the European Union. It has been decided to refer to this inventory in order to ensure the maximum uniformity of the emission data reported by Italy to international bodies. The CORINAIR Inventory is the basis for the estimates provided by Italy to the European Environment Agency and the EMEP Programme of the Geneva Convention on Long Range Trans-Boundary Air Pollution.

15. The 1990 CO_2 emissions in the energy sector total 401.4 million tons, of which 34.5 per cent come from energy processing and production industries, 23.9 per cent from transport, 22.6 per cent from industry, 10.3 per cent from the residential sector and 6.6 per cent from the commercial and institutional sector.

16. This estimate differs from that reported by Italy to the European Union in the context of Council Decision 93/389/EEC on the "Monitoring mechanism of CO_2 and other greenhouse gas emissions", totalling 421 million tons of CO_2, for the following reasons:

(a) In accordance with the Guidelines of the ninth session of the INC, emissions from international bunkers (12.5 Mt CO_2) have been considered separately from the national total (as mentioned in paragraph 2.3 of the communication);

(b) In order to make the estimate match international statistics (like those of the International Energy Agency/Organisation for Economic Co-operation and Development (IEA/OECD)) corrections had to be made to the lower heat generating power of bitumen and lubricants (with a fall of approximately 5 $MtCO_2$);

(c) The estimates are based on the statistics of the Oil Bulletin, which supplies detailed information on the amount and quality of the fuel consumed by the end users, and on the reports for individual facilities, rather than on the fuel flows for the entire economic system contained in the National Energy Budget (the emissions thus fall by a further 2.1 $MtCO_2$).

17. To the energy-related emissions, 27.6 Mt of CO_2 should be added from industrial processes and 3.7 Mt of CO_2 from forest fires; the carbon dioxide absorbed every year by the national forest reserves corresponds to approximately 40.4 Mt of CO_2 absorbed from the atmosphere. Total national emissions are therefore 391.2 Mt of CO_2.

18. Emissions of other greenhouse gases and precursors on the basis of the CORINAIR 1990 Inventory are: 3.901 kt of CH_4, 120 of N_2O, 2.128 of NO_x, 9.333 of CO and 2401 of NMVOC. In 1990, processes for the primary smelting of aluminum released 14 tons of CF_4 and 1.4 tons of C_2F_6 into the atmosphere.

19. The analysis of national data on energy consumption and CO_2 emissions highlight the fact that Italy, compared to the other OECD countries, has a very low energy intensity (for example, in 1991, the consumption of primary per capita sources and per unit of gross domestic product (GDP) was the lowest of the 7 most industrialized countries). This may be explained by various factors, including the temperate climate, high energy taxes, limited national energy resources and, last but not least, the contribution of energy saving policies over the past 25 years. CO_2 emissions of the energy sector per unit of GDP are also among the lowest in the OECD.

20. Given the lower energy intensity, national goals of limiting CO_2 emissions therefore have higher costs than in other countries.

THE SCENARIO FORECAST FOR 2000 AND THE MEASURES ALREADY ADOPTED

21. The basic scenario adopted for energy consumption estimates for 2000 is made on the basis of a constant technology economic analysis. The total forecast primary energy requirement for 2000 is approximately 190 Mtep, from which there are approximately 463 Mt of carbon dioxide emissions.

22. The main economic analysis variable of this scenario consists in the average annual GDP growth rate between 1990 and 2000 of 2 per cent, in constant value lire, corresponding to an average annual growth rate of approximately 3 per cent up to 2000.

23. Compared to 1990, the fossil fuels mix change has been characterized by an increase in natural gas share mainly at the expense of coal, and a resulting fall in CO_2 emissions for the different emission factors between the two fuels.

24. A number of measures, already provided for in the 1988 National Energy Plan (NEP 1988), have already been implemented in order to achieve a more rational use of energy; this involves a significant reduction of consumption and emission levels compared to the business-as-usual scenario.

25. Generally speaking, the measures taken into consideration tend to highlight the opportunities for energy efficiency in the sectoral programmes and in the interventions for the modification and updating of processing and products.

26. The limitation of carbon dioxide emissions is not an aim which is separate from development policies and programmes, but one which is an environmental goal for the efficient use of energy and the improved use of resources as an economic goal included in any planned growth forecast in Italy.

27. The first set of measures concerns electric power generation: the cogeneration of electric power and heat and electricity generation from independent producers. These measures have already been planned on the basis of economic and industrial policy options made separately from the goal of stabilizing emissions.

28. The ENEL (national generation, transmission and distribution utility) programmes for thermoelectric power plants, adopted as a basis and revision of NEP 1988, provide for the following initiative between 1994 and 2000, apart from those already started between 1990 and 1993:

- The closure of approximately 3,500 MWe of fuel oil and coal power plants with a yield of under 34 per cent;

- The construction of new gas turbine installations, converting some existing plants into combined cycle plants, for a total of approximately 1,600 MWe and the construction of new combined cycle plants for 1,800 MWe with an average yield of approximately 45-50 per cent;

- The construction of new "conventional" plants for approximately 3,100 MWe, with an average yield of approximately 40 per cent.

29. The ENEL programmes already defined involve approximately Lit. 10,000 billion in investments.

30. Cogeneration and electricity generation from independent producers are another significant contribution to the energy efficiency of industrial systems and the reduction of emissions. New plants for generating a further 6,000 MWe from renewable or related energy resources should be built by 2000. This production receives incentives from energy supply contracts to the ENEL network. The cogeneration and independent production facilities which have already been approved involve investment of approximately Lit. 9,000 billion.

31. Compared to the economic forecasting based on constant technology, the results expected from industrial cogeneration and independent power production, there is a fall in energy requirements of approximately 4 Mtep with a CO_2 emission reduction of approximately 22 Mt. These results are due to the improved yield of the plants and the modification of the hypothetical fuel mixture. The specific emission level per kwh of electricity consumed is reduced to approximately 7 per cent compared to 1990.

32. In the civil and industrial sectors Law N. 10/91, as amended in subsequent budget laws, makes available approximately Lit. 2,500 billion in incentive funds to be utilized by 1997. These incentives correspond on average to 30 per cent of the total investment subject to incentives. The total investments available thus correspond to approximately Lit. 8,300 billion.

33. On the basis of investments started, and with the hypothesis of an average time of 2 years for completing the facilities, the savings expected by 2000 are approximately 4 Mtep, if the investments are started by 1997. This estimate has been calculated also considering that about 70 per cent of the savings derive from the industrial sector (on the basis of the incentive quota provided to the sector under Law N. 10) and the other 30 per cent from the non-industrial sector.

34. In the transportation sector, within the measures described in paras. 36-45, policies concerning infrastructure build-up and increase of public transport facilities in urban areas are already operative. A consistent improvement of new private vehicle energy efficiency has also been achieved in recent years.

35. On the basis of the subsequent changes and initiatives, it can be estimated that energy consumption in 2000 will show an annual average increase in primary source consumption of between 0.9 per cent (scenario 2b) and 1.3 per cent (scenario 2a), corresponding to a rise in CO_2 emissions of between 0.4 and 0.9 per cent.

POSSIBLE INITIATIVES FOR FURTHER CONTAINING CO_2 EMISSIONS

36. The initiatives are as follows.

37. Regulations with the aim of:

(a) Defining minimum energy efficiency standards for industrial components and processes, and for equipment designed for the domestic and services sectors;

(b) Adopting energy efficiency verifications in certification procedures for new motor vehicles and industrial vehicles, with the aim of gradually introducing higher efficiency thresholds; increases in efficiency of electric vehicles, especially underground lines and electric railways;

(c) Improving use of resources available for meeting the demand for urban transport;

(d) Promoting voluntary agreements between authorities and companies for early achievement of efficiency standards in components and processing, by providing proper incentives.

38. The identification of the minimum energy efficiency standards is in accordance with the other measures adopted in the European and national plans for the definition of goals such as the quality of the air, limits on vehicle emissions and ecolabels.

39. Voluntary agreements, incentives and information. Standards can represent the goal of performance and environmental quality, to be achieved through agreements between industries and the authorities with the support of incentives and funding. In particular, the minimum energy efficiency goals are connected with funding provided to industries, both direct and indirect, for technological innovation, environmental protection and, more generally speaking, to support employment.

40. In industry, important effects occur with the recovery of residues from production cycles to be used as secondary material or non-conventional fuel for use in highly efficient plants.

41. In transport, the basis is formed by the measures set for in the resolution by the Interministerial Committee for Economic Planning dated 7 June 1993 "Guidelines to be adopted for Italian initiatives in the Community with regard to transport" with the following long term aims:

(a) To ensure the coherence of current Community polices on trans-European railways for high-speed and combined transport;

(b) To create intermodal railway facilities, especially in the goods sector, and to develop transport systems with lower energy and environment impact;

(c) Technological improvement of the regional lines providing access to the trans-European networks (TEN) and additional motorway and road links;

(d) To give priority to new railway crossings over the Alps and to expand the current road crossings.

42. The following measures are also required:

(a) In urban areas, policies for the investment in and improvement of underground railways and the integrated management of public and private transport;

(b) Increased energy efficiency of transportation vehicles;

(c) Provision of incentives for renewing the stock of cars in circulation which are over ten years old.

43. In the non-industrial sector, further energy saving measures could be implemented by identifying standards and technologies aimed at:

(a) Utilizing high efficiency lighting systems and devices;

(b) Using highly efficient appliances.

44. With regard to domestic heating and air conditioning, requalification measures are required in existing systems.

45. All of the measures must be supported by an information campaign developing the experience already started by the Ministry for Industry.

46. The implementation of these measures could reduce energy consumption and CO_2 emissions to the lowest level stated at the end of the previous section by 2000 (scenario 2b), and ensure the maintenance of this trend in subsequent years.

THE CONTRIBUTION OF ITALIAN EMISSIONS TO GLOBAL RADIATIVE FORCING

47. The analysis of radiative forcing reductions in national emission levels, assessed by multiplying the emissions of the various gases for their global warming potential (GWP) highlight the following, even considering the considerable uncertainty of the GWP levels:

(a) The significant impact of interventions for methane emission reduction, especially over a 20 year period;

(b) The significant contribution to radiative forcing of HFC-134a emissions;

(c) The possibility of achieving the goal of reducing the national contribution to global radiative forcing for 2000 within 20 years by implementing all the measures stated for scenario 2a, into a 100 year period also considering most of the measures stated for scenario 2b, and into a 500 year period considering all the measures for scenario 2b.

48. With respect to the specific goal of stabilizing CO_2 emissions, which are of great importance for the stabilization of long term radiative forcing, the Italian government believes that the efforts required to achieve this goal must be coordinated in the context of international cooperation. Taking this goal into consideration, Italy has recently:

(a) Reminded the European Union of the need to adopt the burden sharing mechanism provided for by the decisions of the EEC Energy-Environment Council of 29 October 1990 for achieving the Community goal of stabilizing CO_2 emissions;

(b) Made a preliminary suggestion to the interim secretariat of the Convention that the eleventh session of the INC highlight the fact that limiting the joint implementation mechanism to reducing CO_2 emissions does not take into account the fact that most industrial countries will not be able to keep their emissions in 2000 to 1990 levels. Italy has therefore proposed an examination of the possibility for industrial countries with national energy-related CO_2 emissions less than 3 per cent of global energy emissions to stabilize their emissions through technological cooperation with developing countries and/or countries in Central and Eastern Europe. This type of technological cooperation could achieve important results and lead to major energy savings in industry, power plants, transport systems and services.

- - - - -