COUNTRY:	Turkmenistan
PROJECT TITLE:	*Turkmenistan: Enabling Activities for the preparation of initial national communication related to the UN Framework Convention on Climate Change (UNFCCC)*
GEF Focal Area:	Climate Change
Country Eligibility:	Ratified UNFCCC on 5 June 1995
GEF Financing:	US$350,000
Government Counterpart Funding	US$60,000
GEF Implementing Agency:	UNEP
Executing Agencies:	Centre for Ecological Monitoring, Ministry of the Use of Natural Resources and Environmental Protection, Republic of Turkmenistan
Collaboration Agencies:	Centre of Hydrometeorology of the Main Turkmenhydromet
Estimated Starting Date:	June 1997
Project Duration:	2 years

Background

1. The Republic of Turkmenistan is situated in the southwest of Central Asia on the same latitude as the Mediterranean, with an area of 488,100 km^2 and a population of about 4.5 million (75% is Turkmens, 10% Russian, 9% Uzbeks, 2% Kazak and 4% others). It borders Kazakhstan on the north, Uzbekistan on the east and north-east, Iran on the south and Afghanistan on the south-east and the Caspian Sea on the west.

2. Deserts occupy 90% of Turkmenistan's vast territory. The Kara-Kum (Black Sand) is one of the world's largest sand deserts, taking up the entire central part of the country and extending into Kazakhstan. Topographically, four-fifths of Turkmenistan is plains. Mountains and foothills rise mainly in the southern part of the republic.

3. With its position deep inside Asia, the resultant unique air-mass circulation, and the character of the relief, Turkmenistan experiences a strongly continental climate, which exhibits great fluctuations in temperatures during the day and the year. The average annual temperature is 14°-16°C. However, the temperature is seldom lower than 35°C during summer days, and it could reach 50°C in the southeast Kara-Kum. In winter, the average temperature in January is -4°C, and it could fall as low as -33°C in Kushka (in 1905).

4. Humidity is very low and rainfall meagre. Precipitation occurs mainly in the spring and average annual rainfall ranges from 80 mm in the north-west desert to about 300 mm in mountainous regions.

5. Turkmenistan's main rivers are the Amu Darya, flowing along its northeastern border toward the Aral Sea, and the Tedzhen, Murgab, and Atrek; there are also numerous small mountain rivers. The geographical position of the rivers and the direction of their flow do not coincide with the location of cultivable lands. The most fertile and still insufficiently used lands lie chiefly in the south, northeast, and west, whereas the principal rivers run mostly in the east. A great number of canals and reservoirs has been built, including the world's largest irrigation and shipping canal, the Karakumsky Kanal (Kara-Kum Canal), which It runs E-W along the southern region. It has been estimated that over half of Turkmenistan's irrigated lands are salt ridden and water logged.

6. Turkmenistan's soils are varied. A unique feature is that there is no definitely formed soil layer in most of the desert region. In the northern and western Kara-Kum, on raised areas, the soil is sandy loam and sandy and clay, sometimes mixed with broken rock. In the oases, a layer suitable for irrigated cultivation has formed.

7. The biological resources are varied. Except in the oases and mountain valleys and plateaus, vegetation is of a pronounced desert character. In the mountain valleys of the Kopet-Dag, wild grape, almond, fig and walnut are found, while juniper and pistachio trees grow on the open slopes. On the riverbanks and islands, mainly in and along the Amu Darya, stand *tugai* forests of black poplar, willow, reed and cane.

9. Fauna is represented mainly by desert creatures: steppe and Persian fox, wildcat, Kara-Kum gazelle and tortoise. In the mountains are mountain rams and goats; the cheetah, lynx and snow leopard; and the porcupine. Jackals, wild boars, and birds frequent the *tugai*. Rare pink deer are also found along the Amu Darya, and wild donkeys roam the Badkhyz and Karabil plateaus in the southwest. The eastern coast of the Caspian Sea is the winter home

of vast flocks of ducks, geese and swans.

10. In the waters of the eastern Caspian, various kinds of herring, sprat, roach, and sturgeon (including the beluga, prized for caviar) are widespread; the Amu Darya and its lakes, and other rivers, contain carp, barbel and pike.

Human Settlement Centres

11. The population is distributed unevenly in different regions of Turkmenistan, but two broad divisions may be seen: an oasis region characterized by adequate water supply, cultivated lands, and developed industry composed of the Kopet-Dag, Tedzhen, Murgab, Middle Amu Darya, and Lower Amu Darya oases; and a desert region, subdivided into Western Turkmenistan, with a well-developed industry, and the Kara-Kum, with cattle raising and resources of natural gas and petroleum under the sands.

12. The Kopet-Dag Oasis stretches along the northern foothills of the Kopet-Dag Range, the slopes of which offer large areas for non-irrigated farming; both the mountains and foothills are also rich in mineral resources. The economic and cultural centre of the oasis is Ashkhabad, the republic's capital with about 520,000 inhabitants. The development of the capital has stimulated industry, turning an agrarian oasis into the industrial-agrarian core of the republic. The Central Asian Railway, linking Tashkent in Uzbekistan with Turkmenbashy (formerly Krasnovodsk), via Ashkhabad and other cities of Turkmenistan, runs between the foothills and the Kara-Kum. The Firyusa and Chuli mountain valleys, rich in water and with a mild climate, have become known as health resorts.

13. The Murgab Oasis is famous for its fine-staple cotton, silk, handmade carpets and rugs, and Karakul sheep. The Murgab River, now that its lower reaches are crossed by the Karakumsky Kanal, can supply more water for irrigation. Mary (formerly Merv) is the centre of the oasis and the surrounding region, and one of the most attractive towns in the republic.

14. Separated from the Murgab by a stretch of the Kara-Kum, the Tedzhen Oasis is formed along the Tedzhen River. Because of the scarcity of water, only small areas of wheat, barley and melons could be cultivated. After the oasis was crossed by the Karakumsky Kanal, however, and the Khauz-Khan Reservoir was built, large areas were irrigated, thus making possible the cultivation of long-staple cotton and the construction of cotton-processing plants. The economic and cultural centre is the town of Tedzhen. South of the oasis lies the Badkhyz National Reserve, with unique pistachio tree woodlands strongly resembling African savanna.

15. The Middle Amu Darya Oasis, in contrast to other oases, stretches almost without interruption for hundreds of miles and is almost entirely cultivated. The Amu Darya waters are very rich in silt, as excellent natural fertilizer. Raising of cotton and silkworms has long been widespread in that area. It is an important producer of kenaf and other fibre crops and the only supplier of wild licorice in the former Soviet Union. The adjoining deserts provide fodder for Karakul sheep. Industries processing agricultural products and mineral raw materials have been developed in the oasis and the adjoining Gaurdak-Kugitang district. The former Soviet Union's largest deposits of sulfur as well as deposits of potassium and other salts are found here, together with building materials. The economic and administrative centre of the oasis and the region is Chazdjev, the second largest city and industrial centre in Turkmenistan.

16. The Lower Amu Darya Oasis lies in the ancient delta of the Amu Darya; Turkmenistan's northern most oasis, it is one of the most important agricultural regions of the republic. The oasis is cut by a dense network of old river beds as well as by irrigation channels and ditches beginning in the neighbouring Uzbekistan. The climate is more continental than that of other oases, but it is warm enough to grow medium-staple cotton and alfalfa. Rice, sweet sorghum, beans, kenaf, sesame, grapes, vegetables and melons are also grown, and cattle and silkworms are raised. Most industrial enterprises are concentrated in the regional centre, the town of Tashauz.

17. The desert of Western Turkmenistan is an enormous and almost waterless expanse, with only a small oasis irrigated by the Atrek River in the extreme southwest. The mountainous part of Western Turkmenistan, a continuation of the Caucasus Mountains, has mineral and fuel resources. The unique deposits of mirabilite in the Kara-Bogaz-Gol Gulf of the Caspian Sea, petroleum (with natural gas and iodine and bromine-containing waters), rock salt and common lake salt are of great importance.

18. Western Turkmenistan is one of the most developed regions of the republic industrially, emphasizing oil extraction and refining, chemical and mining industries, and fisheries and fish processing. Its rural population is less dense than that in the east. People are mostly engaged in raising sheep, goats, camels and, to a lesser extent, grains and melons.

19. In the southern part of the Krasnovodsk Plateau, overlooking a bay of the Caspian Sea, stands the city of Turkmenbashy. Nebitdag lies inland, east of Turkmenbashy.

20. The three parts of the Kara-Kum and the other featureless deserts occupying the greater portion of the republic -- enter, in part, all of the above-mentioned areas. They are distinguished by the same desert landscape, lack of surface water, exceptionally meagre precipitation, and high summer temperatures. At the same time, the desert is a zone of fuel and mineral resources, and its richest pastures can be used all the year round for sheep, goats and camels.

21. With such vast area of deserts, dust storms are rather frequent, with a maximum average of more than 50 days a year in central Kara-Kum and in the west of the country, and 30-50 days a year for the rest of Kara-Kum and 10-30 days a year for the northern part of the country.

22. The Desert Institute of Academy Sciences of Turkmenistan has been actively participating in activities organized by UNEP's Desertification Control Programme Activity Centre since 1978. At the request of the Government, UNEP has, in 1994-95, assisted the country in developing a National Action Programme to combat desertification.

The Economy

23. One of the poorest republics of the former USSR, Turkmenistan had experienced considerable economic decline even before the dissolution of the USSR in December 1991.

Industry

24. Industry is one of the foundations of Turkmenistan, with more than 400 industrial enterprises which employ 150,000 people. Since independence the proportion of industrial

activity in the economy has significantly increased (70% in 1993). The major volume of industrial production (58%) belongs to the fuel and power sector. The basic industries are oil extracting and refining, gas, chemical, machine manufacturing, building materials, mineral extraction, fertilizers and power generation.

25. Petroleum deposits and the associated oil industry are centred in the Caspian plain in Western Turkmenistan and in the offshore oil fields to the west of the Cheleken Peninsula in the Caspian Sea. Turkmenistan oil is of a very high grade, both as a fuel and as a chemical raw material. A network of natural gas pipelines links gas deposits in Western Turkmenistan with Ashkhabad, Turkmenbashy, Cheleken, and the central regions of the republic.

26. Significant in the chemical industry are the Chazdjev superphosphate plant, mirabilite from the vicinity of the Kara-Bogaz-Gol, sulfur from Gaurdak, iodine and bromine factories on the Cheleken Peninsula, and production of detergents at the Turkmenbashy oil refinery.

27. Turkmenistan has a number of gas-fired thermal power stations, at Nebitdag, Ashkhabad, Buzmejin, Turkmenbashy, Seyidi and Mary. The Mary power station is the largest in Central Asia, with a design capacity of 1,200 MW, and the electricity produced is also exported to Uzbekistan, Kazakhstan and Afghanistan. There is a hydropower station, the Hindu-Kush plant, on the Murgab River.

28. Engineering and metal-processing enterprises include repair shops for diesel locomotives, railway cars and agricultural machinery. In Ashkhabad and in Mary there are plants producing, among other products, equipment for extracting and refining oil. Textile and cotton-ginning industries are also important; there are silk-winding and silk-weaving mills, as well as cotton, cotton-wool, and worsted mills. Artificial furs, leather footwear and sewn goods are also produced.

29. The most important branches of the food industry are vegetable oil, fish, meat, flour production and wine making. The republic exports oil, butter, wine, fish and salt to other parts of the former Soviet Union and other countries of the world.

30. Domestic industries, especially carpet and rug making, occupy an important place in the republic's economy. Turkmen carpets and rugs, long renowned for their durability and unique designs, are exported to more than 50 countries.

Agriculture

31. The growing of cotton and the raising of Karakul sheep, horses and camels are the most important branches of agriculture. Turkmenistan is the largest producer of fine-staple cotton among the former Soviet Union countries.

32. Kenaf is a new industrial crop, and sesame is important among oil-bearing plants. Wheat and barely account for much of the area sown in grain crops; areas under millet and rice are as yet insignificant. Fodder crops (corn [maize], alfalfa, and others) occupy one-sixth of the sown area. Turkmenistan melons have long been famous, and the republic's grapes are also well known.

33. The republic produces Karakul pelts, including black arabi, golden sur and silver-gray shirazi, all very beautiful, durable, and in great demand in the world market; indeed, Karakul

sheep account for more than 70% of all sheep in the republic.

34. Over the centuries, Turkmens have also evolved the horses of the Akhal Tekke and Yomut breeds, valued for their physical endurance, speed and beauty. Camels mainly Arabian, and indispensable in the desert as a means of transport for sheep herders, for getting water from desert wells, and as a source of meat, wool and milk, are also traditional Turkmen livestock. Turkmenistan leads the former Soviet Union countries in the production of silkworm cocoons.

Transportation

35. The basic means of transport is the railways. The main trunk line is between Turkmenbashy and Tashkent, with branch lines from Mary to Kushka and from Nebitdag to Vyshka. In the 1950s a line was built to link Chardzhou, and areas as far northwest along the Amu Darya as Kungrad, to the central regions. In 1996, the branch line between Tedjen and Serahs was built. The trains are operated using liquid fuel.

36. Road transport is developing more rapidly than rail, and trucks handle most freight traffic within the republic. The main highways pass near railway lines and supplement them, especially in short-distance deliveries, but roads are also being constructed in more remote regions.

37. There is a merchant fleet, and the Turkmenbashy - Baku ferry provides a 336 km link across the Caspian Sea; the electrically powered ferries are each capable of handling a freight train and making two trips daily. River transport, in seasonal operation on the Amu Darya and the Karakumsky Kanal, is of local importance. Passenger planes and helicopters connect Ashkhabad with many towns in the republic and elsewhere in the former Soviet Union and other parts of the world, as well as with remote geological prospectors' camps.

38. A network of pipelines connects the oil fields and gas deposits with transportation or consumption points. Natural gas is piped to central regions of the Russian Federation and to the Urals.

International conventions

39. Turkmenistan has ratified the following international conventions:

- Vienna Convention for the Protection of the Ozone Layer (1993)
- Montreal Protocol on Substances that Deplete the Ozone Layer (1993)
- UN Framework Convention on Climate Change (1995)
- Convention On Biological Diversity (1996)
- Basel Convention on Transboundary Movement of Hazardous Wastes (1996)
- Convention to Combat Decertification (1995)

National environmental policy and legislation

40. In addition, Turkmenistan has the following national legislation:

- Resolution of the President Turkmenistan N304 from 08.07.91 "About Measures on Radical Improvement of Ecological Conditions in Caspian Sea":
- Law on State Especially Protected Natural Territories (1992)
- Law About Entrails (1992)
- Sanitary Code of Turkmenistan (1992)
- Law on Protection and Rational Use of Flora (1993)
- Forest Code (1993)
- Law on Ecological Examination (1995)
- Law on Protection of Air (1996)

Past and on-going activities on climate change

41. Turkmenistan has been active in hydro-meteorological and climatic research in the past 50 years. The country had experienced very cold and even severe winters (e.g., in 1969, 1972, 1974, 1977), very hot summers (e.g., in 1983, 1989, 1995) and unusually early frosts in the autumn (e.g., in 1977). These seem to be related to the changes in intensity of various types of synoptic processes in the general circulation of the atmosphere. However, the change in monthly and annual average air temperatures in the last century has revealed no significant trend. As a result of the development of irrigation schemes for agriculture in extensive areas, the amount of precipitation has slightly increased.

42. There are 18 monitoring stations in the whole country for air pollution control purposes, five of which are located in Ashkhabad, three in Chazdjev, and two each in Buzmejin, Dashhovuz, Mary, Nebitdag and Turkmenbashy. These stations continuously monitor sulphur dioxide, carbon monoxide, nitrogen oxides, hydrocarbons, phenols, ammonia (in Mary), hydrogen fluoride (in Chazdjev) and heavy metals (in both dust and precipitation samples). There are also three total ozone monitoring stations (in Ashkhabad, Chazdjev and Turkmenbashy), but there is an urgent need to upgrade the instrumentation for the air quality and total ozone monitoring networks.

43. Turkmenistan ratified the UNFCCC on 5 June 1995. However, until this project proposal it has not initiated any activities related to the preparation of the initial national communication.

44. There is an urgent need to strengthen the national climatic activities in the following areas:

- organization of a hydrometeorological research institute staffed with highly skilled climatologists;

- expansion of the monitoring network;
- expansion in training technical personnel;
- development of the national climate change programme;
- strengthening the coordination of interdepartmental research (e.g., Main Turkmenhydromet, Academy of Sciences of Turkmenistan, Agricultural Academy of Science of Turkmenistan; Medical Academy of Science of Turkmenistan, etc.);
- increase the number of professional staff in climatic research;
- application of automatic data logging system;
- development of methodology to enhance the understanding of climatic variability and changes in conjunction with other research institutes in the region, particularly the Central Asia Meteorological Research Institute;
- review of all research results over 5-year intervals and publicize these results among the general public and policy and decision-makers;
- linkage of climate change issues to national sustainable development.

Project Objectives

45. Article 12.5 of the UNFCCC requires Parties to prepare national communications within three years of ratifying the Convention. The Government of Turkmenistan is fully committed to the implementation of the UNFCCC, and hence it intends to prepare and submit its initial national communication two years after the approval of the funding for this project.

46. Thus, the main objective of this proposal is to enable the country to fulfil its commitments and obligations as required by Articles 4.1 and 12.1 of the Convention, especially the preparation and the reporting of its initial notional communication as required by Article 12.1 (a), (b) and (c) of the UNFCCC based on the recommended COP2 guidelines and format for non-Annex 1 Parties.

Project Description

47. This proposal follows the "*GEF Operational Guidelines for Expedited Financing of Initial Communication from Non-Annex 1 Parties (February 1997)*". It consists of nine clearly defined activities, each of which is briefly described as follows:

Activity 1: Establishment of the Project Management and National Study Teams

48. Based on the existing scientific and technical expertise, a Project Management Team (PMT) and a National Study Team (NST) will be established under the auspices of the Centre for Ecological Monitoring (CEM) of the Ministry of the Use of Natural Resources and Environmental Protection of Turkmenistan, in consultation with the Centre of Hydrometeorology of the Main Turkmenhydromet and other relevant ministries and

governmental departments, as well as the private sector, including NGOs. A National Climate Change Committee (NCCC) will be formed to provide guidance to the PMT (see paras. 84 and 94). // newly added

49. The NST will comprise four core groups: GHG Inventory, Mitigation Options, Vulnerability/Impacts Assessment and Adaptation, and National Communication. Each core group is composed of a number of experts drawing from public and private sectors. The NST will be coordinated by a Project Coordinator, who will be designated by the CEM to coordinate the day-to-day project activities. The Head of the CEM, together with the Project Coordinator and the leader of each core group, will form the PMT, which will be supported by a secretary. The PMT will have adequate and appropriate computer and telecommunication facilities, including Internet.

Major output:

50. The major output of this proposed activity will be the establishment of the PMT and NST which are fully committed to the successful implementation of the project.

Activity 2: GHG inventories

51. Following the new COP2 guidelines, the national inventory of GHG will mainly focus on CO_2, CH_4 and N_2O in (a) all energy sources; (b) industrial processes; (c) agricultural processes; (d) land use change and forestry; and (e) other sources, while data for other GHG may be collected where available.

52. The GHG inventory will be based on the 1994 data using the latest version of the IPCC Guidelines. This activity will be undertaken by the GHG Inventory Group, which will draw from the available expertise from both the public and private sectors. The capacity for this group to undertake the task will be strengthened and enhanced where necessary.

53. The country has not undertaken any previous GHG emissions inventory. Due to the large number of point sources in the vast area (a total of 46 districts in five regions) which need to be covered (some remote regions are rather difficult to travel for data collection), and certain local emission factors for its varied soil types which need to be researched, as well as the inventory of GHG sink for its various vegetation, including the *tugai* forests and desert vegetation (it is expected that some research is needed in this area), an upper range of the recommended amount of funds (US$85,000) is justifiably requested for this activity. The funds also include translation (from English to Russian) costs for training materials and training workshops.

54. A data collection and management system will be set up so that both the data and the GHG inventory can be updated regularly and efficiently.

55. This activity will be coordinated with the regional efforts whenever and wherever possible.

56. At the end of the GHG inventory, a workshop will be held to review and present the results to national policy and decision makers.

Major outputs:

57. The major outputs of this proposed activity will be:

(a) A comprehensive GHG inventory based on the 1994 data, so that it can be used as a basis for the assessment of mitigation options.

(b) Identification of shortcomings and gaps in the IPCC Guidelines in relation to the local conditions.

(c) A description of any original research needed to develop and/or apply new emission factors for specific activities.

(d) Recommendations on areas of targeted research to improve future inventories and to suggest revisions to the existing IPCC GHG inventory methodology.

(e) A mechanism for regular updating and management of the inventory database.

(f) Strengthening of the inventory study team.

(g) Workshop report.

Activity 3: Programs to address climate change and its adverse impacts, including abatement and sink enhancement

58. Based on the results of the GHG inventory, this project will identify, analyze and assess a range of potential mitigation options so that a national strategy and plan for viable measures to abate the increase in GHG emissions and to enhance removals by sinks can be developed and formulated.

59. Appropriate computer models will be used to assess various mitigation options.

60. The proposed activity will be undertaken by the Mitigation Options Group, drawing from available expertise from both the public and private sectors. The capacity for this group to undertake the task will be strengthened and enhanced where necessary.

61. A workshop will be conducted for key stakeholders (e.g., relevant ministries, emerging private sector and NGOs selected by the NCCC; see para. 98) and policy and decision makers to review the options and strategies at the end of the study. revised

Major outputs:

62. The major outputs of the proposed activity will be:

(a) Identification and assessment of mitigation options.

(b) Recommendations on reducing the number and intensity of emissions from various sources and the enhancement of sinks.

(c) Preparation of the first national mitigation strategy for the national communication.

(d) Workshop report.

Activity 4: Policy options for monitoring systems and response strategies for impacts

63. This project will identify and develop adequate monitoring systems for climate change impacts assessment where necessary within the proposed budget for this activity. It is expected that in-kind contribution from the Government will be made to complement this activity where necessary. Using the *IPCC Technical Guidelines*, it will also undertake a comprehensive vulnerability and impacts assessment on terrestrial (especially in oases) and marine (Caspian Sea) ecosystems (these include agriculture, forestry, water resources, human health, natural ecosystems, and other aspects such as socio-economics) using the 1994 data. Special attention will be paid to the problem of the Caspian Sea level rise which has resulted in the partial or total flooding of coastal zones, construction sites, pastures, trunk roads and oil derricks. The linkage between climate change and desertification may also be explored. || revised

64. All existing data (if any) will be critically reviewed and data gaps identified. A Vulnerability/Impact Assessment and Adaptation Group, drawing from the available expertise of both the public and private sectors, will be formed within the NST to undertake this task. The capacity for this group to undertake the task will be strengthened and enhanced where necessary. In addition, institutional strengthening on vulnerability and impact assessment, which seems to be weak at present, will be addressed.

65. Lessons will be learned from the methodology as developed by UNEP's "*Country Case Studies on Climate Change Impacts and Adaptation Assessments (Phase I)*". In view of the lack of data in this area, it is expected that some basic research will be needed.

66. Based on this study, policy options will be identified and developed for the response strategies.

67. A workshop will be held for various stakeholders (see para. 61) as well as policy and decision makers to review and publicize the results at the end of the study. || revised

Major outputs:

68. The major outputs of the proposed activity will be:

(a) Important baseline data required for the assessment of climate change vulnerability/ impacts and adaptation options.

(b) A comprehensive vulnerability/assessment for various sectors based on established procedures.

(c) Policy options for adequate monitoring systems and response strategies for climate change impacts on terrestrial and marine ecosystems.

(d) Workshop report.

Activity 5: Policy frameworks for implementing adaptation measures and response strategies

69. Based on the results of the vulnerability and impacts assessment for various sectors, this project will identify, analyze and assess a range of potential adaptation (stage 1) options so that a national strategy for the viable measures can be developed and formulated to minimize the impacts of climate change on the economy.

70. Based on this study, policy frameworks will be developed for implementing adaptation measures and response strategies in the context of coastal zone management, disaster preparedness, agriculture, fisheries, and forestry, with a view to integrating climate change impact information, as appropriate, into planning and decision-making processes.

71. The capacity for the Vulnerability Assessment and Adaptation Group to undertake this task will be strengthened and enhanced where necessary.

72. A workshop will be conducted for key stakeholders and policy-makers to review the adaptation options and strategies and the policy frameworks for their implementation at the end of the study.

Major outputs:

73. The major outputs of the proposed activity will be:

(a) Identification and assessment of adaptation (stage 1) options.

(b) Policy frameworks for implementing adaptation measures and response strategies.

(c) Workshop report.

Activity 6. Building capacity to integrate climate change concerns into planning

74. In the context of undertaking national communication, there is a need to build or strengthen the national capacity to integrate climate change concerns into medium and long-term planning. This may include education and training on climate change for national development planners, as well as for policy and decision-makers.

Major Output:

75. Enhanced capacity of the national development planners and policy and decision-makers to integrate climate change concerns into planning.

Activity 7: Programs related to sustainable development, research, public awareness, etc

76. This project will identify and develop programmes in climate change which are related to sustainable development, research and systematic observation, education and public awareness, training, etc.

77. For example, Activities 2 to 6 will contain elements in research and systematic

observation, education and training as given in the COP2 guidelines. In addition, it is proposed to develop a cost-effective public awareness programme so that public awareness campaigns can be undertaken throughout the project cycle when and where possible and that the campaigns can reach all levels in all districts of the country. Both the public and private media (television, radio and newspapers) will be used to assist in creating and enhancing public awareness on all aspects of climate change. CC:INFO/Web will also be used as a tool to enhance the national and international information flow.

Major Outputs

78. The major outputs of this proposed activity will include:

(a) Information packages, video aids, relevant publications, etc.

(b) Enhanced public awareness at all levels and in all districts of the country.

Activity 8: Provision of other information

79. This project will also provide any other information relevant to the achievement of the objective of the UNFCCC. It will identify the technical and financial needs associated with proposed projects and response measures under Article 4. If feasible, it will also provide material or data relevant for calculation of global GHG emission trend. In addition, it may describe the financial and technological needs and constraints associated with the communication of information. In particular, and following the evolving recommendations of the Conference of the Parties through its subsidiary bodies, the description may cover needs and constraints associated with the further improvement of national communications, including reduction of the margin of uncertainty in emission and removal variables through appropriate institutional and capacity-building.

Activity 9: Preparation of national communication

80. Based on the outputs of Activities 2 to 8 as described above, the initial national communication will be prepared and submitted to the UNFCCC Secretariat.

81. This task will be coordinated by the National Communication Group. It will involve all members of the PMT and NST, each of which will prepare the relevant sections of the initial national communication.

82. The draft national communication will be reviewed by respected technical institutions. Based on this review, a revised version will be produced. A meeting will then be organized for key stakeholders (see para. 61) and policy and decision makers to review this revised draft national communication before it is finalized and submitted to the UNFCCC Secretariat. || revised

Major Output:

83. The major output of this proposed activity will be the initial National Communication to be submitted to the UNFCCC Secretariat.

Project management and coordination

84. This project will be executed by the CEM. The National Climate Change Committee (NCCC) will guide the implementation of this project and to provide overall policy advice. This Committee will be chaired by the Head of the Ministry of the Use of Natural Resources and Environmental Protection and supported by a Vice-Chair. It will be composed of representatives from various relevant ministries (see para. 99) and institutions, including NGOs.

85. The project management and coordination structure is shown in Figure 1.

Proposed work schedule

86. The proposed timetable for commencement and completion of all activities described above is given in Table 1. Detailed work plans for each activity will be developed later by the Project Coordinator in consultation with the NCCC and with the assistance of UNEP, which will be consulted throughout the period of the project implementation.

Appropriate sequencing

87. The above project activities will be undertaken in appropriate sequence based on good practice. Established guidelines will be followed, while established tools and methodologies will be used. Lessons learned from other enabling activities projects, including UNEP's "*Country Case Studies on Sources and Sinks of Greenhouse Gases*", UNEP/UCCEE's "*Economics of GHG Limitations - Phase I: Methodological Framework for Climate Change Mitigation Assessment*", and UNEP's "*Country Case Studies on Climate Change Impacts and Adaptation Assessments (Phase I)*", will be useful for the implementation of the project.

Activity matrix

88. Turkmenistan has not undertaken any enabling activities before, and hence the question of duplication of effort does not arise. The activity matrix which indicates the areas needed to be covered by this proposal are shown in Table 2.

Training

89. All training activities, including national workshops and participation of regional and international workshops to be organized by UNEP, UNDP or other international agencies for their on-going enabling activities programmes, will be coordinated by the PMT. The request for participation in the UNITAR CC:TRAIN programme as an observer will be explored where appropriate.

90. Training materials from the past and on-going activities may be obtained from various regional and international sources, such as IPCC, UNITAR (CC:TRAIN), etc, though translation of these materials from English to Russian is necessary. Lessons can also be learned from other on-going enabling activities programmes in the region implemented by UNDP (e.g., in Uzbekistan).

91. UNEP, with its extensive experience in training in enabling activities, will be consulted on all aspects of training, such as the workshop agenda, the trainers, etc. Technical

assistance will be provided where necessary.

National level support

92. This project enjoys a very high level and a wide range of national support. It is fully endorsed and supported by the Minister of the Use of Natural Resources and Environmental Protection, and it will be implemented under the guidance of this Ministry, which was established in 1992 and which deals with all environmental issues exclusively. Also, the project will be participated by a number of relevant ministries and institutes (see para. 99).

93. The support of the UNDP field office is crucial, and it will be regularly consulted during the implementation of the project. Other support, including the logistical support, by UNDP will be solicited where appropriate.

Project financing and budget

94. As the proposed activities are standard enabling activities as defined by the Operational Guidelines, so the incremental cost for undertaking these activities are also full cost. The requested GEF funding of US$350,000 reflects the fact that Turkmenistan has not undertaken any enabling activities before, as well as the varied complexities of the natural ecosystems, especially its desert ecosystem, and the specific needs and concerns of the country while fulfilling its commitments for the implementation of the UNFCCC (Table 3). In particular, the costs of translation from English to Russian of relevant training materials and during training workshops have been taken into consideration. This budget has been realistically estimated by the Centre of Ecological Monitoring (CEM), the designated executing agency of the project, with the guidance of UNEP, and thoroughly reviewed by the Ministry of the Use of Natural Resources and Environmental Protection and fully endorsed and supported by its Minister, who is also the GEF focal point of the country.

95. The Senior Programme Officer (Climate Change) of the GEF Coordination Office, UNEP, visited the country in early March 1997 to provide guidance on the formulation of the proposed budget, and to critically assess the availability of existing resources for the implementation of the project. Since then, he has had thorough discussions with the CEM on the detailed breakdown of the budget for each proposed activity via frequent exchanges of correspondence by faxes and via telephones. UNEP is fully convinced that the requested funding is essential for the successful implementation of the project over the next two years.

96. As a country "*with arid and semi-arid areas, ... and areas liable to forest decay*" (Article 4.8 (c), "*with areas prone to natural disasters*" (Article 4.8 (d), "*with areas liable to drought and desertification*" (Article 4.8 (e), "*with areas with fragile ecosystems, including mountainous ecosystems*" (Article 4.8 (g), Turkmenistan deserves special consideration under Article 4, paragraph 8 of the Convention, including necessary actions related to funding, insurance and the transfer of technology, to meet its specific needs and concerns arising from the adverse effects of climate change and/or the impact of the implementation of response measures.

97. The contribution of the Government of Turkmenistan, which will amount to US$60,000 over the period of the project, will include salaries for technicians and other supporting staff, vehicles for field trips and their maintenance, office rentals, insurance and others.

Institutional framework and project implementation

98. As shown in the project management structure (Figure 1), the National Climate Change Committee (NCCC) of Turkmenistan will oversee the overall execution of the project, which will be executed by the CEM. In order to involve a wide range of stakeholders and to maximize the outputs of the proposed activities, appropriate experts from the following ministries and institutions are expected to participate in the project: Ministry of Public Health and Medical Industry, Ministry of Meliorations and Water Economy, State Committee on Land Use, Land Management and Realization of Ground Reform, Ministry of Industry, Main State Inspection on Standardization, Metrology, Protection Entrails and Safe Running of Work in National Economy, Ministry of Agriculture and Food, Academy of Sciences, Ecological Clubs of Ashkhabad and Dashkovuz, and the Society of Protection of Nature of Turkmenistan.

99. This project will seek to strengthen the existing institutional framework for project management where necessary.

100. As a GEF implementing agency, UNEP will play a technical support and advisory role through its Atmosphere Unit with the support of the Regional Office for Europe based in Geneva and the UNEP Collaborating Centre on Energy and Environment (UCCEE) based in Denmark, so as to ensure that the project is successfully implemented.

Rationale for GEF support

101. This is a standard enabling activities proposal which will assist Turkmenistan to fulfill its reporting requirements under the UNFCCC. As GEF is the international entity entrusted to operate the financial mechanism for the UNFCCC on the interim basis, the proposed activities are eligible for GEF funding.

Sustainability and participation

102. The Government of Turkmenistan is fully committed to the implementation of the UNFCCC, and hence the goals and objectives of this project. The strengthening of scientific, technical and institutional capacities of Turkmenistan in various aspects of the proposed activities, as well as the leading role taken by the CEM to execute the project would enable the country to fulfill its obligations and commitments to the UNFCCC on a sustainable basis. Indeed, the whole project management structure is designed in such a way that full participation by local experts in all aspects of activities are ensured, so that further activities in the future are sustainable.

Issues and risks

Issues

103. In order to successfully implement the project, close coordination between the CEM, the NCCC and the PMT is essential to ensure the success of the project. Also, CEM needs to consult with all relevant stakeholders in both the public and private sectors, including NGOs and research organizations.

Risks

104. The potential risks which may mask the objectives and goals of the project are:

(a) Longer time period than expected for collection and analysis of data and the preparation of the national communication.

(b) Inadequate consultations among various stakeholders.

(c) Lack of involvement of major policy and decision makers in the formulation of final strategy and national communication. || revised

105. Necessary actions will be undertaken to prevent all the risks mentioned above from arising.

Monitoring and evaluation

106. The Project Coordinator will provide a monthly progress report to the CEM, which will share it with UNEP. If possible, these reports may be compiled into an electronic newsletter that will be distributed to all participating institutions. These reports will enable the CEM and its supporting institutions to evaluate the implementation of the project on an ongoing basis and identify difficulties and shortcomings at an early stage. They will be reviewed by the NCCC for their quality and standard, comprehensiveness, and conformity to the proposed terms of reference and dates of completion.

107. The NCCC will meet on a quarterly basis to review project implementation and provide scientific, technical, policy and strategic guidance. The minutes of these meetings will be shared with all participating institutions. The NCCC will make recommendation to the CEM, which, in turn, will provide six-monthly progress reports and quarterly financial reports to UNEP based on UNEP's standard format.

108. UNEP will provide its established monitoring and evaluation guidelines and assessment procedures, which will be applied to evaluate the progress of the project during mid-term and after its completion.

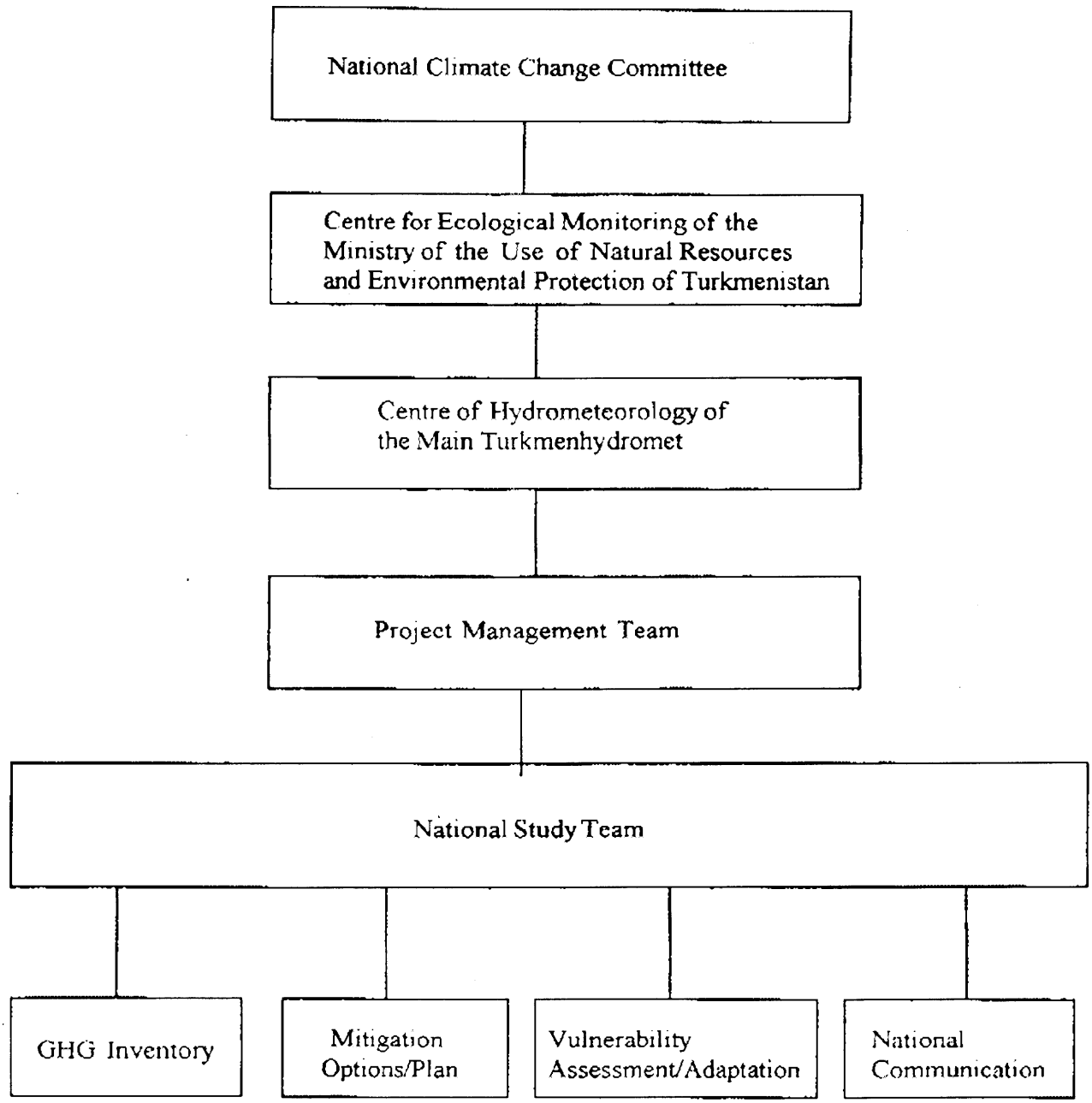
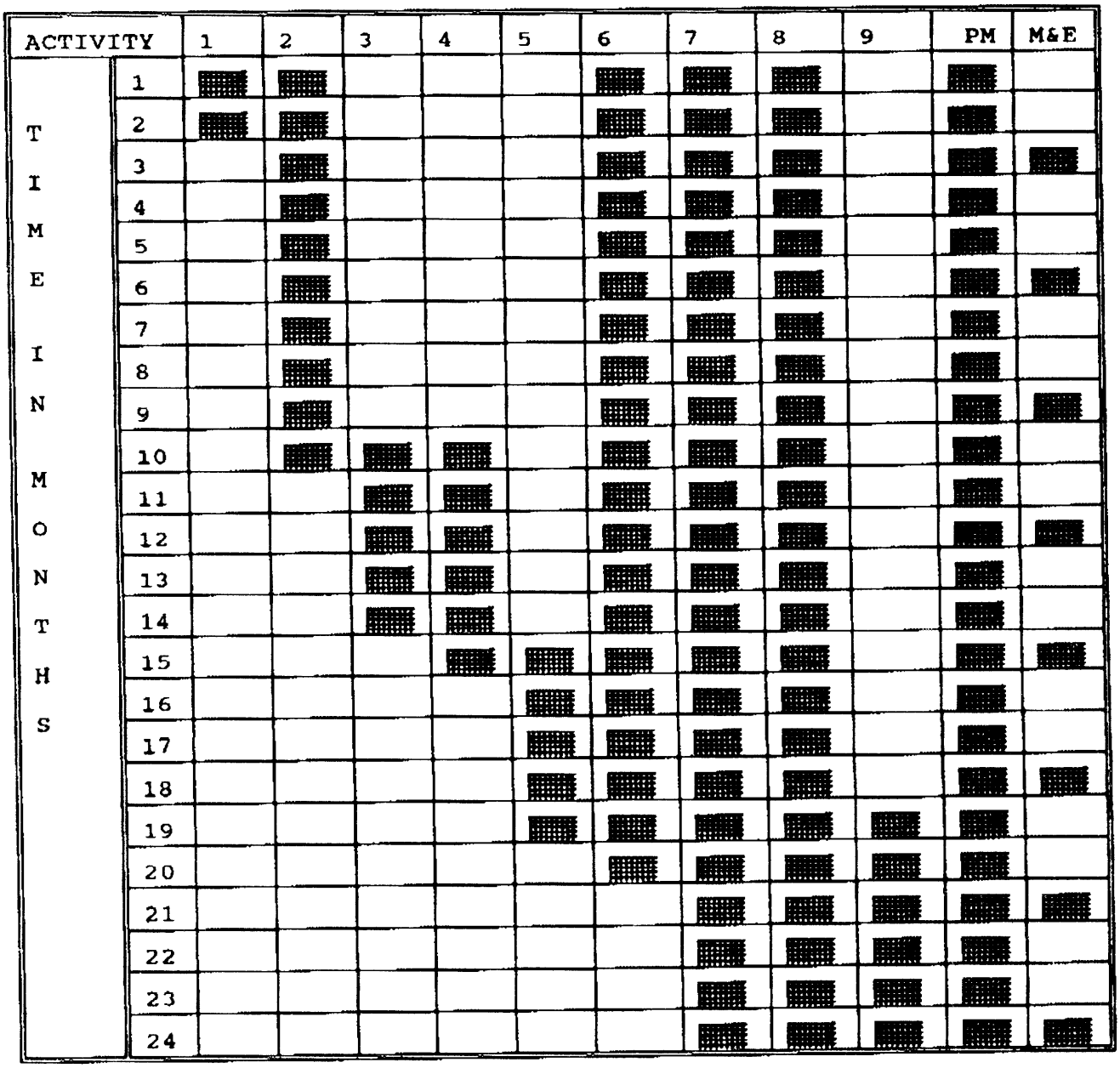


Figure 1: Project management structure

TABLE 1. PROPOSED WORK SCHEDULE



NB: Some activities are expected to run concurrently as indicated.

PM is Project Management.

M&E is Evaluation and Monitoring.

Table 2: Enabling Activities required for Initial National Communications (Turkmenistan)

Enabling Activity / Commitment	Planning and execution	Capacity Building		
		Data Gathering and Research*	Institutional Strengthening	Training & Education
1. National Circumstances	x	x	N/A	N/A
2. Greenhouse Gas Inventories	x	x	x	x
(See Table A2 as completed)				
1. -All Energy Sources	x	x	x	x
2. -Industrial Processes	x	x	x	x
3. -Agricultural Processes	x	x	x	x
4. -Land use Change & Forestry	x	x	x	x
5. -Other Sources	x	x	x	x
3. General Description of Steps taken or envisaged to implement the Convention				
(a) Program related to sustainable development, research, public awareness, etc.	x	x	x	x
(b) Policy Options for Monitoring Systems and Response Strategies for Impacts.	x	x	x	x
(c) Policy Frameworks for Implementing Adaptation Measures and Response Strategies	x	x	x	x
(d) Building Capacity to integrate climate change concerns into planning	x	N/A	x	x
(e) Programs to address climate change and its adverse impacts, including abatement and sink enhancement.	x	x	x	x
4. Other Information				
(a) Calculation of Emission Trends	x	x	x	x
(b) Financial and Technological Needs and Constraints for				
- Projects for Financing	x	x	x	x
- National Communications	x	x	x	x
- Vulnerability Assessment and Adaptation	x	x	x	x
5. Compilation and Production of the Initial National Communication	x	N/A	N/A	N/A

* In the context of communication-related enabling activities.

Table 3: Project Budget for Enabling Activities for Turkmenistan

Enabling Activity / Commitment	Planning and execution (US$)	Capacity Building				Total Cost (US$)
		Data Gathering and Research (US$)	Institutional Strengthening (US$)	Training and Education (US$)	Technical & Admin. Support (US$)	
2. Greenhouse Gas Inventories	38,250		21,250	17,000	8,500	**85,000**
3. General Description of Steps	60,300		33,500	26,800	13,400	**134,000**
(a) Programs related to sustainable development, research, public awareness, etc.		4,500	2,500	2,000	1,000	10,000
(b) Policy Options for Monitoring Systems and Response Strategies for Impacts		16,650	9,250	7,400	3,700	37,000
(c) Policy Frameworks for Implementing Adaptation Measures and Response Strategies		16,650	9,250	7,400	3,700	37,000
(d) Building Capacity to integrate Climate concerns into Planning		4,500	2,500	2,000	1,000	10,000
(e) Programs to address climate change, adverse impacts, including abatement, sink enhancement		18,000	10,000	8,000	4,000	40,000
4. Other Information	4,500		2,500	2,000	1,000	**10,000**
(a) Material relevant for Global Emission Trends	2,250		1,250	1,000	500	5,000
(b) Financial, Technological Needs and Constraints	2,250		1,250	1,000	500	5,000
5. Compilation and Production of Initial National Communication	9,000		5,000	4,000	2,000	**20,000**
Project Management						**65,000**
Monitoring/Evaluation						**10,000**
Total						**324,000**
% of Total	45%		25%	20%	10%	
UNEP Coordination (8%)					Total	**26,000**
						350,000