



# TURKMENISTAN: ISSUES AND APPROACHES TO COMBAT DESERTIFICATION

*Discussion Draft*

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## CURRENCY EQUIVALENTS

US\$ 1 = manat 5,200 (official rate)

US\$ 1 = manat 22,000 (market rate)

## ABBREVIATIONS

ADB	–	Asian Development Bank
CARs	–	Central Asian Republics
CBT	–	Central Bank of Turkmenistan
CCA	–	Common Country Assessment (UN System)
CIC	–	National Commission for Implementation of Environmental Conventions
CIS	–	Commonwealth of Independent States
EBRD	–	European Bank for Reconstruction and Development
EU	–	European Union
GDP	–	Gross Domestic Product
GEF	–	Global Environment Facility
GM	–	Global Mechanism of the UNCCD
GNP	–	Gross National Product
GWP	–	Global Water Partnership
ICAS	–	Interstate Council for the Aral Sea (merged into IFAS)
ICSD	–	Interstate Commission for Sustainable Development
ICWC	–	Interstate Commission for Water Coordination
IFAS	–	International Fund for Saving the Aral Sea
IMF	–	International Monetary Fund
IOS	–	Interim Operational Strategy
IsDB	–	Islamic Development Bank
MEAs	–	multilateral environmental agreements
MOU	–	memorandum of understanding
NAP	–	National Action Program under UNCCD
NFP	–	National Focal Point
NEAP	–	National Environmental Action Plan
NGO	–	non-governmental organization
NIDFF	–	National Institute of Deserts, Flora and Fauna
ODS	–	ozone-depleting substances
PIP	–	Public Investment Plan
PREGA	–	Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement Projects, an ADB RETA
POP	–	persistent organic pollutant
PPTA	–	Project Preparation Technical Assistance
RAP	–	Regional Action Program under UNCCD
REAP	–	Regional Environmental Action Plan
REC	–	Regional Environment Center
REPM	–	Register of Emissions and Pollutant Movement
RETA	–	Regional Technical Assistance
SIC	–	Scientific Information Center
SPA	–	Strategic Partnership Agreement
SRAP	–	Sub-regional Action Program under UNCCD
TA	–	Technical Assistance
TACIS	–	Technical Assistance for the Commonwealth of Independent States

TLSS	–	Turkmenistan Living Standards Survey
TU	–	Turkmenistan
UNCCD	–	UN Convention to Combat Desertification and Drought
UNDP	–	United Nations Development Program
UNEP	–	United Nations Environment Program
USAID	–	United States Agency for International Development
WB	–	World Bank

### GLOSSARY

<i>Archin</i>	–	Head of Gengeshy
<i>Khalk Maslakhaty</i>	–	People’s Council
<i>Khalk Vekilleri</i>	–	People’s Representative
Khyakim	–	Head of Velayat or Etrap
<i>Mejlis</i>	–	Parliament
<i>Velayat</i>	–	Province
<i>Etrap</i>	–	District
<i>Gengeshy</i>	–	Local Self-governance Unit
<i>Kolkhozes</i>	–	Agricultural Cooperatives
<i>Sovkhozes</i>	–	State Farms
<i>Turkmenmillihasabat</i>	–	Turkmenistan Statistics and Forecasting Agency

### ADMINISTRATIVE UNITS

Ashgabat (Capital City)	Dashoguz Velayat
Akhal Velayat	Lebap Velayat
Balkan Velayat	Mary Velayat

## COMBATING DESERTIFICATION IN CENTRAL ASIA

### TURKMENISTAN: ISSUES AND APPROACHES TO COMBAT DESERTIFICATION (IACD-TU)

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## COMBATING DESERTIFICATION IN CENTRAL ASIA

### TURKMENISTAN: ISSUES AND APPROACHES TO COMBAT DESERTIFICATION (IACD-TU)

#### EXECUTIVE SUMMARY

1. The ADB Regional Technical Assistance (RETA) 5941, cofinanced by the Asian Development Bank (ADB) and the Global Mechanism (GM), provides technical assistance to the Central Asian Republics (CARs) to facilitate the implementation of the National Action Programs (NAPs) to combat desertification. The outcomes and activities of the RETA will serve to enhance the operations of a growing strategic partnership of donors interested in working together with the CARs to strengthen the implementation of the UN Convention on Combating Drought and Desertification (UNCCD) in Central Asia. This *Turkmenistan: Issues and Approaches to Combat Desertification* paper (IACD) has been prepared according to the conclusions reached at the working meeting of the National Focal Points (NFPs) and domestic consultants, the international consultant and representatives of the GM and UNCCD Secretariat, held in Tashkent on October 28-31, 2002.<sup>1</sup> The IACD takes into account the country situation paper (CSP) prepared by the domestic consultant for Turkmenistan, Dr. Mukhammed A. Nepesov, and a large number of other background documents.

2. The report focuses on (i) macroeconomic context and living standards, (ii) land degradation/desertification, (iii) the implementation of the Convention to Combat Desertification (CCD), (iv) the policy framework, (v) priorities and programs to combat land degradation, and (vi) issues and opportunities in implementing UNCCD in Turkmenistan.

#### Macroeconomic context and living standards

3. Turkmenistan covers a territory of 491.2 thousand km<sup>2</sup>, with a total population of 5.6 million (2001) which is growing at a rapid average annual growth rate of 3.3% (between 1992 and 2000). The largest part of country (80%) is occupied by a desert plain, and arable land constitutes only about 4% of the total land area. Gross National Product (GNP) per capita in 1998 was \$540.<sup>2</sup> Turkmenistan has adopted a guarded approach in its transition to a market economy, with an emphasis on providing a range of public services and goods at subsidized prices, so as to improve living standards. Key development goals as outlined in the Government's 10 Year National Program for 2000-2010 are: (i) economic independence; (ii) food safety; (iii) social security; and (iv) ecological safety. These translate into a reform agenda of improved budget and debt management, trade policy adjustment and exchange rate liberalization, agricultural reform, and privatization. However, the pace of progress on these reforms has been relatively slow since independence. The financial sector remains largely in public sector control. While the country's level of debt is not unmanageable, it signals a potential problem area requiring close monitoring and discipline on public investments.<sup>3</sup> Political transformation has also been incremental with slow reform to promote good governance and institute the basic structures of democracy. Decision-making is still highly centralised, and the role of the state strong and pervasive throughout society.<sup>4</sup>

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<sup>1</sup> The meeting reviewed the interim outputs of the RETA by the domestic consultants and the international consultant.

<sup>2</sup> World Bank. "Making Transition Work for Everyone" (2000). GNP per capita by Atlas method for 2000 is estimated at \$ 840.

<sup>3</sup> World Bank, Country Assistance Strategy for Turkmenistan, December 2000.

<sup>4</sup> United Nations System, Common Country Assessment (CCA), 2000.

4. Turkmenistan's approach to maintaining the living standards of its rapidly growing population has been to minimize the negative social impact of transition using fossil fuel export revenues to support this system. Despite relatively low cash incomes, basic human needs have been met through an extensive system of subsidies and allowances. Water, gas, fuel and flour, as well as basic social services, are close to free. As a consequence, only a rather small proportion of the population (7%) is living below an absolute policy line of \$ 2.15 PPP per day.<sup>5</sup> However, there are many people living only just above this level, and 58% of the population in 1998 had cash incomes below the minimum wage. The level of inequality is also high. The first comprehensive survey for the country, conducted in 1998, showed that about 10% of the population accounted for about 44% of total consumption, while the other 90% of the population accounted for the remaining 56% of total consumption. The bottom 20% of the population accounted for only 6% of the total national consumption.

5. **Land degradation/desertification.** The Karakum Desert occupies about 80% of the territory of Turkmenistan. The high aridity of the climate, mobility of the soil substrate, and sparse natural vegetation, with high sensitivity to even small changes in the wind velocity, favor the appearance of deflation processes characterized by drifting sand and dust storms. The desertification processes are classified as: (i) degradation of the vegetative cover; (ii) deflation in a sand desert; (iii) water erosion of hillsides; (iv) salinization of irrigated lands; (v) salinization of soils caused by lowering of the Aral Sea level; (vi) technogenic desertification; and (vii) swamping of pastures in the zone of discharge of collector and drainage water. Flooding processes and salinization of new territories, together with pollution caused by oil and gas industrial activity, have caused severe environmental degradation in the entire Caspian Sea region of the country.

6. Land degradation results largely from improper land use. The most severe forms of land degradation, however, relate to the loss of vegetative cover, salinization, water pollution and inefficient use of irrigation water. Water losses in irrigation amount to approximately one-third of the water drawn, with efficiency of water use being no more than 60 percent. Total water consumption is increasing, partly due to increasing population and partly due to the deteriorating irrigation system and the development of new land for grain production. Desert pasture animal breeding has a number of drawbacks – the small reserves of fodder, the seasonal nature of their utilization over a considerable territory, the large fluctuations in the reserves over years and seasons, and the inadequate water supply in a number of regions. Total annual direct economic losses from these practices are estimated at US\$ 112.87 million, while total costs of rehabilitation are estimated at US\$ 234.00 million, providing an estimated total (annual) economic loss of US\$ 347 million.

7. **Implementation of the CCD.** The National Action Program to combat desertification is the main instrument to implement commitments under the UNCCD. The National Action Programme to Combat Desertification in Turkmenistan (NAP/CD) was prepared in 1996 by the scientists of the Desert Research Institute, with support from the United Nations Environment Programme (UNEP). The NAP is a well structured document, which covers the country's: physical environment and resources; socio-economic development; human-induced desertification; strategy and plan of action; and programs of high priority to combat desertification. However, its main weaknesses are the: (a) stand-alone nature of the NAP; (b) absence of structured linkages between the NAP and the national, provincial, district and local levels of Government; and (c) limited interaction with NGOs or civil society organizations based on participatory approaches.

8. The Desert Research Institute, now renamed as the National Institute of Deserts, Flora and Fauna of Ministry of Nature Protection (NIDFF), is the designated Focal Institution for the implementation of

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<sup>5</sup> Normalized by purchasing power parity (PPP).

the UNCCD in Turkmenistan. The National Focal Point for UNCCD is Dr. Muhamet H. Durikov, Head of the Laboratory of Forests & Rangelands, in the NIDFF. Turkmenistan has set up a unified coordinating and oversight mechanism for the environmental Conventions – the National Commission for Implementation of UN Environmental Conventions and Programmes (CIC). The CIC has been given responsibility to prepare and endorse national action plans and programmes in the area of environmental protection and rational resource management. However, it seems that the CIC is not being used as a coordinating forum to exploit synergies between various conventions at the policy or programmatic levels.

9. The NFP and the Focal Institution (NIDFF) have already in hand a number of project concepts and some programs which are awaiting financing. They need capacity building support to upgrade these proposals to donor agencies requirements, for translation, and for production of reports in English. The Institute also needs support for some of its scientists to have more advanced training/exchange visits abroad to further hone their analytical skills. In situ training is needed in orienting the experts into participatory methods of on-farm and applied action research to bring the NAP process closer to the grassroots. The Institute also needs to upgrade and enhance its equipment and research infrastructure at headquarters and at its field stations. The NAP also needs to be integrated into the national budgetary and planning process and focus more on crosscutting and participatory approaches building on traditional knowledge of the local communities.

### **The policy framework**

10. Macroeconomic policies. Turkmenistan's pursuit of policy reform agenda has been halting and gradual – with the pace of reform judged by international community as the slowest in the Central Asian region. The highest priority areas of the un-finished structural reform agenda of the Government include: liberalizing the exchange rate regime and improving public resource management – including stronger debt management, budget consolidation, a more rational use of extra-budgetary funds; and addressing issues inhibiting private sector and financial sector development. In the area of environmental management, policy incentives to prevent overuse of water resources and control of land degradation and pollution need greater attention within the overall policy framework. There is an inherent contradiction between a policy of mandating large growth targets for outputs of various commodities, such as cotton, and improving water use efficiency and conserving the environment. *The interface between the policy reform agenda and environmental and land degradation issues is rather weak – a deficiency which needs to be overcome through mainstreaming of these issues into the policy making process.*

11. Strategy to improve living standards. The strategy to improve living standards relies heavily on universal subsidization of basic goods and social services. While it does bring tangible benefits to the society living on low real wages, the strategy is not sustainable in the medium to long term. Its main limitations are: (i) high non-transparent costs; (ii) low degree of targeting on the poor and needy; (iii) low quality of services and maintenance; and (iv) limited opportunities for employment generation. Such a high cost and untargeted subsidization program is not sustainable and does not stimulate broad-based growth.

12. The legal framework. The country's fairly extensive range of environmental legislation lacks clarity and enforceability. Turkmenistan also needs reforms of its basic legal system, as a consistent and harmonized body of laws and regulations is not yet available. The Government does intend to carry out major legal and judicial reforms, among them: the passing of the criminal and procedural code; the law on courts; the law on the office of the public prosecutor; as well as the law on legal profession and the legal status of lawyers. Strict and transparent enforcement of compliance is a major constraint throughout Central Asia. There is need for rationalizing and improving environmental legislation, particularly with a view to strengthening the provisions with respect to enforcement of quality standards, usage norms and



charges, and pollution control measures. *The challenge is how to transform existing legislation to that which can support the market transition and also to adopt new laws and regulations more appropriate to the process of market-based policy reforms.*

13. Natural resources management and environmental policies. Natural resource management practices in agriculture, irrigation, forestry and pastures have contributed to the problems of land degradation and pollution. There is a large common ground between approaches to sustainable natural resource management and measures to combat desertification. The deterioration of water and soil resources, particularly the increasing levels of soil salinity, soil erosion, and declining water quantity and quality, constitute major environmental problems in the country. Turkmenistan has built an extensive network of irrigation canals channeling water from the Amu Darya River to its plains and oases. Sedimentation in reservoirs and irrigation canals in Turkmenistan is a persistent problem that cannot be solved without regional cooperation. Soil erosion in upstream countries contributes considerably to the high concentration of silt in the Amu Darya River. The government also is embarking on creating the so-called Golden Lake, which would capture irrigation drainage from a vast area in the lower Amu Darya Basin with uncertain economic benefit and environmental consequences.

14. The main constraints to environmental management are: (i) the existing legislation on the administration and management of environment and natural resources is fragmentary, with responsibility allocated to too many government agencies; (ii) Turkmenistan has no comprehensive land use plan based on environmental assessment and corresponding management procedures; and (iii) there is inadequate institutional capacity in terms of both technical and management skills, which has hindered effective policy analysis and implementation. The Government has recently completed preparation of a National Environmental Action Plan (NEAP), which is expected to impart a certain degree of cohesion to the strategies and actions for national environment management and for control of land degradation, which constitutes a major component of national environmental concerns.

15. Agricultural sector policies. The two major crops, wheat and cotton, are produced and marketed under a state-order system –in which the Government sets procurement prices and production targets. While the area under wheat has increased in recent years, yields per hectare have remained low: below 2.6 tons/ha from 1992 to 1998. On the other hand, the area allocated to other crops that are outside the state-order system (vegetables, potatoes, fruits) has declined since independence. To some extent, the retained state-order system offsets the dynamism imparted to agricultural growth by recent leasehold-based farm restructuring. Under this unique approach, collective holdings are being transformed gradually through a process of dividing collective land into plots that are leased to families while retaining the overall structure of the collective farm. The main issues which need to be addressed in the context of leasehold-based land reforms are: (i) individual farming activities are restricted by the persistence of state orders, which also circumscribe the degree of financial independence of leaseholders; (ii) state orders impose a severe tax burden on agriculture (through the difference in market commodity prices versus what is paid to farmers); (iii) there is need for a transition to secure tenure rights in land; and (iv) the land reform process should ensure easy transferability of land among individuals in the interest of creating optimal farm sizes and to facilitate the expansion of farm capital. *Peasant associations retain a central role in monitoring and control over leaseholders. These should be transformed into a technical and extension support structure for the farm units with an emphasis on participatory modes if farm units are to cooperate in activities to tackle land degradation problems.*

16. Adjustments to pasture and livestock management policies amongst broader agriculture sector reforms remain unclear. Since the Soviet period, a new system of rotation grazing has been introduced and methods of range improvement and range seeding developed and tested. The NAP has proposed the breeding and selection of new fodder plants, the establishment of pasture protective zones, use of mineral fertilizers on pastures, transformation of year-round pastures, the sowing of seeds on pastures, and their amelioration as a means of combating the degradation of rangelands. Creation of year-round pastures is

one of the priority projects included in the NAP. However, the treatment of rangelands or livestock remains unclear under the leasehold-based farm restructuring policy. Many cattle have been transferred to households, but they have not been provided with enough land to support an adequate feed base.

17. Water conservation policies. The water resources management issues in Turkmenistan are complex. At the heart of these issues is the overuse of water to irrigate crops (primarily for cotton production) and a lack of incentives for individuals and businesses to conserve water. This overuse has increased the salinity of the soil with resultant land degradation and reduction in crop yields. It has also contributed to the shrinking of the Aral Sea. Efforts to effectively address issues of water resource management in Turkmenistan, however, are very much linked to agrarian reforms and agricultural practices.

18. Turkmenistan is almost entirely dependent on the resources of the Amu Darya River for both drinking and agricultural water. One of the world's largest and longest rivers, the Amu Darya travels from its headwaters in Afghanistan and Tajikistan, forms the border between Turkmenistan and Uzbekistan for more than 1000 kilometers, and then flows through Turkmenistan to its delta in the Aral Sea located in the Karakalpakstan autonomous region of Uzbekistan. Turkmenistan has built an extensive network of irrigation canals channeling water from Amu Darya to its plains and oases that consume more than 95% of the resource. The largest is the 1,100 km Karakum Main Canal (KMC), one of the longest canals in the world. *The nature of the transboundary water system determines that the long-term solution to effective water management in Turkmenistan will depend on not only the country's own efforts but also on regional cooperation among the riparian states of the Amu Darya basin. This has made the water issue in Turkmenistan more challenging and complicated, given the predictable difficulties and uncertainty in terms of jointly planning and managing the river basins resources—such as sharing maintenance costs and other responsibilities.*

### **Priorities and Programs to combat land degradation.**

19. Government priorities. The NAP focuses mainly on the conduct of further research or the field testing of outcomes of ongoing research in areas such as: investigation of desertification or degradation processes; combating of soils salinization; identifying progressive technologies for enrichment of rangelands; and stabilization and afforestation of moving sands. The NAP's focus on such priorities is well placed, however, there is a need for the Focal Institution to undertake an internal exercise to rank these activities with reference to the outcomes of earlier and ongoing research. Preference may be given to research areas which are closer to field testing through community-based pilot projects. From this perspective, it is recommended that the following areas may be considered as of high priority over the medium term for TA support to research or field trials on pilot basis:

- (i) information and monitoring systems of select desert landscapes;
- (ii) new agro-technical water preserving technologies to control soils salinization, through participation of local communities/ NGOs;
- (iii) improvement of rangelands and quality of fodder resources; and
- (iv) testing new technologies on stabilization and afforestation of moving sands.

20. Government Programs. The CCD Focal Institution (NIDFF) has some ongoing programs which have in the past received external assistance, and these may have to be phased out if further funding is not secured.<sup>6</sup> In addition, the Focal Institution has submitted project briefs for three project ideas (see Table 4). These are all in the nature of pilot projects to be executed by the NIDFF with external technical assistance in the form of grant financing.

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<sup>6</sup> These projects are listed in Section A of Part V.

21. Investment projects/programs. Such programs raise five main issues which largely are common to all the Central Asian countries:

- *First*, the challenge to control land degradation requires activities, projects or programs which are crosscutting in nature, and require inter-agency collaboration.
- *Second*, such programs should be closer to location-specific problems, respond to local beneficiaries' needs and involve their active participation, and be implemented under decentralized funding and oversight arrangements rather than a top-down approach.
- *Third*, other investment projects should address land degradation concerns within a multi-sectoral or multi-component framework—such as agricultural development, irrigation, drylands reclamation, forestry or livestock development. Such projects may lie with agencies outside the Focal Institution, which should facilitate inter-agency coordination to ensure that the agencies involved incorporate land degradation issues into project scope from an early design stage.
- *Fourth*, notwithstanding the Government's stringent fiscal and budgetary policies, it is emphasized that the Government has undertaken certain obligations under the articles of the CCD to provide financial and other support for the implementation of the Convention. It is therefore suggested that appropriate budgetary allocations be provided in the case of priority projects to combat land degradation by bringing such projects within the framework of the national budgetary and PIP processes.
- *Fifth*, an important reason why investment projects don't figure in the NAPs is also that capacity to develop investment projects, which directly or indirectly address land degradation issues, is limited in concerned agencies. Such projects need cross-sectoral approaches to tackling major problem areas of land and water degradation—salinization, deforestation, overgrazing and declining soil fertility—through well designed project interventions with particular focus on dryland management.<sup>7</sup>

22. External Financing. Combating land degradation needs considerable technical, advisory and financial support from development partners. In the case of Turkmenistan, two types of constraints have caused donor agencies to stop or scale-down their assistance to Turkmenistan: (i) the lack of absorptive capacity; and (ii) the Government's gradual approach to some crucial areas of policy reforms, which has led donors to defer aid commitments tied to creating an enabling policy environment for effective development outcomes. Section B of Part V provides a review of the operations of various donor agencies in Turkmenistan and the sectoral focus of their interventions. Overall, international aid commitments slumped precipitously from \$ 21.4 million in 2000 to \$ 3.1 million in 2001.

23. The challenge for the Government is how to make UNCCD an important issue within the Government as well as for the donor community so that funds get allocated to combat land degradation. In this context, it may be noted that Turkmenistan has considerable serious work to its credit in its search for solutions to combating desertification. The CCD Focal Institution has also presented some credible proposals for grant financing<sup>8</sup> to further advance its research. The Focal Institution also appears to have a sound track record and expertise, notwithstanding limited English language skills amongst its staff, to implement its research programs. External support could help reorient its work and make it more participatory and driven by demands from the rural communities it seeks to serve. Further, **NIDFF**,

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<sup>7</sup> The main priority areas for TA and investment support, both at national and regional levels, identified by the UNCCD –National Focal Points from CARs are: (i) monitoring, assessment of desertification processes and environmental impact assessment; (ii) improving the use of water in agriculture; (iii) combating erosion, salinization and swamp formation; (iv) agro forestry and forests resources management on the plains and in the mountains; (v) watershed management; (vi) rangeland management; and (vii) nature and biodiversity conservation; ecotourism development.

<sup>8</sup> See the discussion in Section A and Annexes 4 and 5.

**under its mandate, can receive grant funds directly from donor agencies.** Assistance for CCD implementation may leverage incremental policy changes in areas which impact most directly on the rural poor and their productivity and incomes. The donors who have been involved in the environmental sectors are: World Bank, UNDP/GEF, USAID, Germany (GTZ), Switzerland, and Japan. Much of their involvement is in the context of the NEAP, water strategy, and the Aral Sea and Caspian Sea Programs. ADB is expected to become an important donor to Turkmenistan with potential for support to combating land degradation as a crosscutting issue.

24. A new window of external financing opportunity also opens with the expected amendment to the Instrument “to designate land degradation, primarily desertification and deforestation, as a focal area, as a means of enhancing GEF support for the successful implementation of the UN Convention to Combat Desertification.”

25. Another opportunity to accelerate implementation of UNCCD/NAP is offered by the GM and ADB initiative in forging strategic partnerships. The Strategic Partnership Agreement (SPA) between the GM, ADB, Germany and Canada, with the possible joining of Switzerland, IFAD and ICARDA, would offer new opportunities to enhance the implementation NAPs, and SRAPs and to promote regional cooperation among CARs. Vigorous follow up of the outcomes of current RETA would provide the concrete instruments to forge strategic partnerships among donors and domestic stakeholders and also establish a coherent platform for the mobilization of resources for UNCCD in Central Asia.

### **Main Conclusions/Recommendations**

26. Part VI of the main report pulls together the principal issues in implementing the CCD in Turkmenistan. Many of these issues have been briefly discussed in the preceding summary. The main conclusions/recommendations from that section are given below:

1. *It is observed that implementation of a number of programs included in Turkmenistan’s NAP framework is being held up for want of financial resources. This situation needs to be reviewed at senior levels by the Government to make necessary financing from domestic resources available for the priority programs to combat desertification. As for the development partners, a limiting factor is that many donors have scaled back their operations in the country because of slow progress on policy reforms. Even so, there is a strong rationale for multilateral and bilateral donors to finance activities which are directly or indirectly supportive of UNCCD objectives through **conscious support** to UNCCD through the NAP framework. This might provide a good entry point to help trigger policy dialogue on policy issues which relate to sustainable management of environmental and natural resources.*
2. *Land degradation is caused by the interaction of human activity with fragile natural systems in pursuit of agricultural intensification, and technogenic factors to develop roads, industrial construction, drilling of wells, and gas extraction complexes. Vegetation is often destroyed in the process. The most severe forms of land degradation, however, relate to the loss of vegetative cover, salinization and water pollution and inefficient use of irrigation water. the search for sustainable solutions requires medium to long-term commitment to applied research and experimentation in location specific contexts with active participation of local beneficiaries.*
3. *The stand-alone nature of the NAP, with limited inter-agency collaboration (except perhaps on some joint research projects of the NIDFF with other research partners),*

*limits effective implementation of CCD. An integrated approach to implementation of cross-cutting programs is not evident. An important problem area is the fragmented responsibilities for environmental protection and natural resource management. Policies the on roles of local government authorities, decentralization and NGO and civil society participation need to be clarified.*

- 4.** *The priority areas of the un-finished structural reform agenda of the Government include liberalizing the exchange rate regime and improving public resource management – including stronger debt management, budget consolidation, a more rational use of extra-budgetary funds, and addressing issues inhibiting private sector and financial sector development. In the area of environmental management, policy incentives to prevent overuse of water resources and control of land degradation and pollution need greater attention within the overall policy framework. There is an inherent contradiction between a policy of mandating large growth targets for outputs of various commodities, such as cotton, and improving water use efficiency and conserving the environment. Another constraint to effective policy reforms is the inadequate institutional capacity for policy analysis and implementation. From the perspective of UNCCD, particular attention needs to be paid to the issues of land and water user rights and regulating the functioning of participatory mechanisms, such as water users associations and credit unions. The laws are often too generic, or too loosely framed, as to make compliance difficult in the absence of authoritative interpretation, or detailed byelaws or regulations.*
- 5.** *The National Focal Institution (NIDFF) and the NFP-CCD have important capacity building needs in areas such as program development, exposure to other research networks working on arid lands, upgrading research and computing facilities, communications and translation resources, and training in management and monitoring of implementation of crosscutting projects and programs. The NAP, which was prepared in 1996 with UNEP assistance, also needs to be revised and brought in line with the current situation on the ground and changing policy perspectives. At the institutional level, implementation is adversely affected by weak government structure and institutions. There is duplication of functions among different ministries and state institutions. This blunts the role of policy making. Implementation is also constrained by inadequate channels to transmit clear directives on policy shifts and decisions on delegation and de-concentration of functions down the line of administrative hierarchies. the interrelation and distribution of responsibilities between central and local authorities still needs to be improved, and the participation of civil society also needs to be strengthened. Thus, policy and program implementation need to move forward hand in hand.*
- 6.** *A new window of opportunity for increased external financing has opened with the designation of “land degradation, primarily desertification and deforestation”, as a focal area, as a means of enhancing GEF support for the successful implementation of the UN Convention to Combat Desertification. To avail itself of these resources, the Government will need to identify suitable projects which meet the GEF selection criteria.*

# **TURKMENISTAN: ISSUES AND APPROACHES TO COMBAT DESERTIFICATION (IACD-TU)**

## **Introduction**

1. The ADB Regional Technical Assistance (RETA) 5941, cofinanced by the Asian Development Bank (ADB) and the Global Mechanism (GM), provides technical assistance to the Central Asian Republics (CARs) to facilitate the implementation of the National Action Programs (NAPs) to combat desertification. The outcomes and activities of the RETA will serve to enhance the operations of a growing strategic partnership of donors interested in working together with the CARs to strengthen the implementation of the UN Convention on Combating Drought and Desertification (UNCCD) in Central Asia. This *Turkmenistan: Issues and Approaches to Combat Desertification* paper (IACD) has been prepared according to the conclusions reached at the working meeting of the National Focal Points (NFPs) and domestic consultants, the international consultant and representatives of the GM and UNCCD Secretariat, held in Tashkent on October 28-31, 2002.<sup>1</sup> The IACD takes into account the country situation paper (CSP) prepared by the domestic consultant for Turkmenistan, Dr. Mukhammed A. Nepesov, and a large number of other background documents.

### **I. Macroeconomic Context and Living Standards**

#### **A. General**

2. The Republic of Turkmenistan is located in the Turanian Plain in the western part of Central Asia, bounded on the east by Uzbekistan, on south by Afghanistan and the Islamic Republic of Iran, on the west by the Caspian Sea, and on the north by Kazakhstan. Its topography is characterized by three categories of landscapes: tertiary plateaus; sandy deserts; and loess piedmont plains. The largest part of country (80%) is occupied by the desert plain, and the smaller by foothills and mountains. Arable land constitutes about 4% of the total land area. Turkmenistan's climate is characterized by a continental, moderate type desert climate and a poorly developed river network.<sup>2</sup> Turkmenistan covers a territory of 491.2 thousand km<sup>2</sup>, and has a total population of 5.6 million (2001), which has grown rapidly with an average annual growth rate of 3.3% between 1992 and 2000. In Turkmenistan, women make up 50.6% of the population and the male/female ratio has stayed constant for the last 15 years. The Constitution guarantees women equal opportunities of training, education, employment, remuneration and promotion, and equal rights in public and cultural spheres. Women also have equal rights to men with regards to their children, property and in divorce.<sup>3</sup> GNP per capita in \$ 1998 is \$540.<sup>4</sup>

#### **B. Economy and reforms**

3. Turkmenistan has adopted gradual approach to the transition to a market economy, with emphasis on providing a range of public services and goods at subsidized prices across-the-board, so as to improve the living standards of its people. Key development goals to achieve sustainable growth as outlined in the Government's 10 Year National Program for 2000-2010 are (i) economic independence, (ii) food security; (iii) social security; and (iv) ecological safety (see Box 1). These translate into a reform agenda

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<sup>1</sup> The meeting reviewed the interim outputs of the RETA by the domestic consultants and the international consultant.

<sup>2</sup> Ministry of Nature Protection of Turkmenistan and UNDP, "The State of Environment of Turkmenistan", Ashgabat, 1999.

<sup>3</sup> United Nations System, Common Country Assessment (CCA), 2000.

<sup>4</sup> World Bank. "Making Transition Work for Everyone" (2000). GNP per capita by Atlas method for 2000 is estimated at \$ 840.

of improved budget and debt management, trade and exchange rate liberalization, agricultural reform, and privatization. However, the pace of progress on these reforms has been slow in the near term. Public investments have been large (about 40% of GDP) and have focused on roads, construction, oil refining, textiles, electrification, food processing. Most of this is financed through off-budget funds and external borrowings. This no doubt would have implication for accumulation of external debt. There is also a case for putting in place a stricter review and oversight process to appraise technical and financial viability of such investments. The largest extra-budgetary fund, the Foreign Exchange Reserve Fund (FERF) needs improved guidelines defining rational and transparent rules. Turkmenistan's stock of debt increased from \$1.7 billion at the end 1997 (66% of GDP) to about \$2.3 billion in March 2000 (about 50% of GDP). Debt service payments stood at about \$400 million annually (about 15% of exports). While the level of the debt is not unmanageable, it signals a potential problem area requiring closer monitoring and greater discipline on public investments.<sup>5</sup> The financial sector remains largely in public sector control. Political transformation has also been incremental with slow reform to promote good governance and institute the basic structures of democracy. Decision-making is still highly centralised and the role of the state strong and pervasive throughout society.<sup>6</sup>

4. The economy in recent years has grown at real GDP growth rates of 7.0 % in 1998, rising to 17.6% in 2000 and 20.5% in 2001. This impressive growth was mainly due to a resumption of gas exports to the Russian Federation and Ukraine, improved agricultural performance, and strong state-led investments, some of which were designed to diversify the industrial structure and increase processing of primary goods both for exports and domestic markets.<sup>7</sup> Until the end of 1997, inflation was persistently high, but the Government has since managed to reduce and control inflation, which was 7.5% in 2000 and down to 5.6% in 2001. The cornerstone of the Turkmen economy is energy. With estimated natural gas reserves ranging from 13 to 21 trillion meter<sup>3</sup>, Turkmenistan possesses the fourth largest natural gas reserves in the world. As regards the structure of the economy, in 2000 industry accounted for 38% of the GDP and employed 18% of the labor force, while agriculture accounted for 26% of the GDP and 48% of the labor force. A large share of GDP (36%) is accounted for by the construction and services sector. Cotton has been the dominant crop and an important source of export earnings. Wheat is the main food crop used mainly for domestic consumption. About 35% of the arable land was devoted to cotton and wheat production in 2000. The Government launched a program to achieve self-sufficiency in grains in order to reduce its dependence on import of basic food stuff. The economy is highly dependent on export trade. However, as a landlocked country, the country's access to major global markets is by overland routes, which adds to transaction costs. Turkmenistan's export earnings are predominantly generated from sales of natural gas, oil and oil products, and cotton fiber.<sup>8</sup>

5. Environmental concerns are reflected as a priority in the national policy agenda. The Government's National Program of Socio-Economic Development up to 2010 has one of its goals as ecological safety to ensure that industrial development takes account of environmental concerns, prevention of an ecological disaster in the Aral Sea region, provision of high-quality water for the population, safe use of chemicals in agriculture, and prevention of soil erosion and salinity. Box 1 shows the main policy goals of the Government.

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<sup>5</sup> World Bank, Country Assistance Strategy for Turkmenistan, December 2000

<sup>6</sup> CCA, *ibid.*

<sup>7</sup> ADB, Turkmenistan Economic Report and Interim Operational Strategy, May 2002.

<sup>8</sup> ADB, Turkmenistan Economic Report, *ibid.*

### Box 1: Primary goals of the State

In December 1999 the Government published the “Strategy for Socio-economic Development in Turkmenistan for the Period up to 2010” The programme will guide the development of the country over the next ten years and identifies four primary goals summarised below:

- ***Economic Independence:*** This includes high rates of economic growth and efficient use of natural and other resources; privatisation and support for entrepreneurship including guaranteeing ownership rights; further integration into the world economy and promotion of foreign investment, and; implementation of a tight budget to provide macro-economic stability.
- ***Food Security:*** This includes increased supply of domestic goods in the market and strict quality control of agricultural exports and imported foodstuffs.
- ***Social Security:*** This provides for labour rights and employment for the population; an increase in the real incomes of workers; strengthening the social safety net for the vulnerable population, and; guaranteeing the inviolability of private ownership.
- ***Ecological Safety:*** This includes ensuring that industrial development takes account of environmental concerns; the prevention of ecological disaster in the Aral Sea region; provision of high quality drinking water for the population, and; the safe use of chemicals in agriculture and the prevention of soil erosion and salinization.

## C. Living Standards

6. Turkmenistan had experienced a severe economic decline throughout much of the 1990. Its approach to maintaining the living standards of its rapidly growing population, with a very young demographic profile, has been shaped by that experience. The Government’s rationale for adopting a very gradual approach to structural reforms has been to minimize the negative social impact of transition and to maintain social and political stability. Despite relatively low cash incomes, basic human needs have been met through an extensive system of subsidies and allowances. Water, gas, fuel and floor, as well as social services, are close to free. As a consequence, only a rather small proportion of the population (7%) is living below an absolute policy line of \$ 2.15 PPP per day. However, there are many people living only just above it, and 58% of the population in 1998 had cash incomes below the minimum wage.<sup>9</sup> The level of inequality is also high, with a particularly large differential between those living in Ashgabat and those living in the regions, especially those living in Dashkovuz. The Turkmenistan Living Standards Survey (TLSS),<sup>10</sup> the first comprehensive survey for the country conducted in 1998, shows that *about 10 percent of the population accounted for about 44 percent of total consumption, while the other 90 percent of the population accounted for the remaining 56 percent of total consumption. The bottom 20% of the population accounted for only 6% of the total national consumption. The gini coefficient in Turkmenistan, at 41 percent, is relatively high by international standards.*<sup>11</sup>

7. There is wide disparity in the dimensions of poverty between regions (*Velayats*) and between urban and rural areas. The poorest region in 1998 was the Velayat of Dashkovuz. In this region, roughly half of the population consumed less than 50% of the national average. The percentage was 53% for rural population and 41% for urban population. Further, while only 18% of the country’s total population lived in Dahkovuz, the poor population of that region accounted for 30% of the total number of the poor in the whole country. This seems to be due to the fact that the region is located in the Turkmen Aral Sea basin affected by land degradation. Table1 shows the regional breakdown of status of living standards.

<sup>9</sup> World Bank, A Profile of Living Standards in Turkmenistan, Report No. 21656 TM, January 2001.

<sup>10</sup> The living standards comparison line used by the National Institute of Statistics and Forecasting of Turkmenistan (*Turkmenmillihasabat*) in its report on the 1998 Survey is based on the minimum wage (Manat 80,000) in 1998), and not on the basis of an estimate of the cost of a basket of goods and services which would be required for minimum human consumption. The World Bank uses in the case of the Central Asian region the absolute internationally accepted poverty line of US\$2.15 per capita per day.

<sup>11</sup> When the gini coefficient is 0, there is a perfectly equal distribution; a gini coefficient of 1 connotes absolute inequality.



<b>Table1. Rural Versus Urban Living Standards &amp; Proportion of Total Poor by Velayat</b>				
<b>Velayat</b>	<b>Population i ncome below 50% of Mean Consumption</b>		<b>Proportion of people with low living standards and Population</b>	
<b>(Province)</b>	<b>Rural</b>	<b>Urban</b>	<b>% of the Poor</b>	<b>% share of Total Pop</b>
Dashoguz	53	41	30.5	18.2
Mary	39	27	27.1	21.7
Balkan	37	13	7.5	12.0
Akhal	35	22	18.1	17.0
Lebap	31	9	16.7	21.1
Ashgabat	0	0	0	10.1
Total			100%	100%
Source: World Bank (2000) A Profile of Living Standards in Turkmenistan, Figure 2.3 & 2.4				

8. In terms of characteristics of the poor in Turkmenistan, the education levels of the poorest quintile do not seem to be much lower than other households. Also, there are no obvious differences between the coverage of boys and girls. The most distinguishing features of the poorest group are the high number of children in the families and their low excess to social infrastructure such as piped water. The “welfare state” based on subsidies does raise issues of adequacy and quality of public services and of sustainability of the underlying approach to poverty reduction and economic and social well being. These issues will be discussed in Part IV.

## **II. Land Degradation/ Desertification**

### **A. Main areas affected by degradation**

9. The Karakum desert occupies about 80 percent of the territory of Turkmenistan. The climate is characterized by a long duration of solar radiation. The annual sum of atmospheric precipitation fluctuates in the Karakum desert from 24 to 568 mm. The high aridity of the climate, mobility of the soil substrate, and spars natural vegetation, with high sensitivity to even small change in the wind velocity, favor the appearance of deflation processes characterized by drifting sand and dust storms. The dust storms are observed the year round on the country’s plain territory, with the highest occurrence in spring and summer, and boost the negative action of droughts on the soil fertility and crops of plants. An important factor underlying the development of desertification is the dust content of the atmosphere. The Institute of the Deserts, Fauna and Flora of Turkmenistan has compiled a map based on the following classification of the deserts: (i) degradation of the vegetative cover; (ii) deflation in a sand desert; (iii) water erosion of hillsides; (iv) salinization of irrigated lands; (v) salinization of soils caused by lowering of the Aral Sea level; (vi) technogenic desertification; and (vii) swamping of pastures in the zone of discharge of collector and drainage water. Caspian Sea region is also affected by desertification. The aridity due to the lack of rainfall and the extremely summer evaporation around the Caspian Sea region is high. Even the adjacent coastal areas on the Kazakhstan and Turkmenistan side due to the extremely low annual precipitation from less 200 mm are desertified although the precipitation coming from the Sea is a bit higher. Flooding processes from 1979 till 1995 and salinization of new territories, together with pollution caused by oil and gas industrial activity, have caused severe environmental degradation in the entire Caspian Sea region.

10. Classification of intensity of desertification.<sup>12</sup> Three classes of desertification are distinguished in accordance with the degree of degradation of the ecological degradation:

- **Slight Desertification:** In agricultural ecological systems, it is characterized by a weak degree of salinization of the soils and a drop in the yield of the leading crop (cotton) by under 15%. In pastures and forest ecological systems – by diminishing of the productivity of the pastures (forest reserves) by under 25% without a change in the dominant species of vegetation.
- **Moderate Desertification:** In agricultural ecological systems, it is characterized by moderate salinization of the soils and a drop in the cotton yield by 15—40%. In pasture and forest ecological systems – by a partial change in the dominant species of vegetation and lowering of the productivity of the deserts (forest reserves) by 25—50%.
- **High Desertification:** In agricultural ecological systems, it is characterized by a high degree of salinization of soils and a drop in the cotton yield by over 40%. In pastures and forest ecological systems there is a complete change in the dominant and subdominant species of vegetation and a drop in the productivity of the pastures (forest reserves) by over 50%.

11. An overview of the incidence of land degradation/desertification is given in table 2. It will be seen that the greatest area is of degraded lands in Turkmenistan is due to degradation of the vegetative cover. These territories adjoin river valleys and foothill regions subject to increased human activity. In remote arid regions, anthropogenic desertification is manifest to a considerably lower extent. More than 80% of gullies on the territory of the country are found in the foothills and mountains of Kopetdag, Kugitang, Greater and Lesser Balkhans, and in the plateaus of Badkhyz and Karabil. Only in the piedmont part of the Kopetdag and Greater Balkhan there are about 120 gullies with a total length of 85 km within the radius of one kilometer. In the Gaurdak – Kugitang region the various types of water erosion (surface washout of soil, rills, gullies) affects the area of about 135,000 ha. During storms, the takyrs with slopes more than 2° and the hills (bairs) are subject to small-groove erosion.

**Table 2. Incidence of land degradation in Turkmenistan**  
By type and intensity (in km<sup>2</sup> / %)

Type of degradation	Class of degradation			Total
	slight km <sup>2</sup> /%	moderate km <sup>2</sup> /%	severe km <sup>2</sup> /%	
<b>Lands used or potentially suitable for use</b>				
1. Degradation of vegetation cover	<u>323442</u> 66,2	<u>43680</u> 10,0	<u>400</u> 0,1	<u>367522</u> 75,3
2. Deflation	<u>2530</u> 0,5	<u>2140</u> 0,4	<u>3970</u> 0,8	<u>8640</u> 1,7
3. Water erosion	<u>6900</u> 1,4	--	--	<u>6900</u> 1,4
4. Salinization of irrigated land	<u>6140</u> 1,3	<u>2510</u> 5,2	<u>9040</u> 1,8	<u>40310</u> 8,3
5. Salinization of land caused by lowering of the Aral Sea level	--	--	<u>15015</u> 3,0	<u>15015</u> 3,0
6. Technogenic desertification	--	<u>920</u> 0,2	--	<u>920</u> 0,2
<b>7. Water-logging of pastures</b>	--	<b><u>5360</u></b> <b>1,1</b>	<b><u>1620</u></b> <b>0,4</b>	<b><u>6980</u></b> <b>1,5</b>
<b>Total</b>	<b><u>339012</u></b> <b>76,0</b>	<b><u>77230</u></b> <b>17,3</b>	<b><u>30045</u></b> <b>6,7</b>	<b><u>446287</u></b> <b>100 %</b>

**Source:** Babaev, A.G., "Problems of Arid Land Development", 1996, p.227.

<sup>12</sup> Babaev, A.G., "Problems of Arid Land Development", 1996, Moscow University Press. According to Prof. A.G. Babaev, the former head of the Desert Institute, the number of dry months is another important characteristic for determining the extent of desertification. A month is considered to be dry if the precipitation in it is below 30 mm. A *slight* danger of desertification is typical of regions with three and less dry months; a *moderate* one – with four to seven; a *high* one – with eight or nine and a very high – with over nine dry months.

## B. Types of land degradation and underlying causes<sup>13</sup>

12. Land degradation results largely from improper land use. The following processes of land degradation are common: chemical contamination, irrigation erosion, secondary salinization, soil sealing and compacting. Contamination of soil is caused by application of chemicals in agriculture, especially by nitrogen and phosphorus. As known optimal quantity of fertilizers stimulates the productivity of agriculture crops and soil fertility. But if a large amount of chemicals is applied, e.g. 400 kg per hectare, 155-216 kg of nitrogen are accumulated in soil annually. Surplus of nitrogen could depress soil biota. Nitrates in soils are mobile. Their maximum was registered in spring and autumn, their minimum in winter. They are washed out from soils located on slopes and gel into ground waters. The role of pesticides in soil contamination is also great. Content of pesticides in arable soils of Turkmenistan totals at an average 9.54 kg per hectare. Organic combinations of chlorine and phosphorus are main chemicals used in agriculture.

13. **The destruction of the vegetation cover** is caused by soil erosion, which is a negative process that reduces the natural potential of the land and impedes its economic development. In Turkmenistan, erosion is widespread in the mountain and hilly terrain and in the piedmont inclined plains because of the presence of significant slopes and scarce tree and shrub vegetation. In arid regions wind erosion occurs under the influence of the three main factors: arid climate, sandy soil and sparse vegetation. Climatic factor is the most stable. Soil factor could vary by its physical properties. Vegetative cover also varies from dense to sparse and especially it could be fully destroyed. The intensity of the process is furthered by the interference of man. Sand areas around oases of Turkmenistan are mainly affected by wind erosion. Human pressure on desert ecosystems is here especially high. **Deflation** mostly affects the sandy desert. The total area of sands in the country is 300,000 sq. km, including loamy sands; over 40% of this territory are covered with weathered sands. Sands have different resistance to deflation; it depends on the thickness of the vegetative cover, the lithological composition and texture of the underlying horizons, the degree of the ruggedness of the sand relief, and the transporting capacity of wind. Even in soddy sands a localized removal of sand material is observed. That is why practically all sandy surfaces experience deflation.

14. **Water erosion and salinization** severely affect the productivity of agriculture. Water is a major environmental issue in Turkmenistan. Serious pollution of surface and ground water occurs from random drainage disposals, applications of chemicals to the fields and the diversion of household and industrial waste. According to the Ministry of the Environment, the Amudarya river, by far the most important water source for Turkmenistan has been regularly listed among the most polluted water bodies in the Central Asian region. Drainage water is also the main source of pollution for the fresh groundwater under the riverbeds. Recent evidence suggests that as much as 25% of surface water does not meet the required sanitary standards and that 65% does not meet bacteriological standards.

15. The water use is an important issue in the **irrigated agriculture**, which is considered crucial for agricultural growth and the goal of achieving food self-reliance. *Growth of the population and the growing processes of aridization that lower the biological productivity of land stimulate the development of irrigation farming in the arid zone. The productivity of an irrigated hectare is five or six times higher than that of a dry farming one.*<sup>14</sup> In Turkmenistan, the total land used for agricultural purposes is 40 million ha, of which land fit for irrigated agriculture is 17 million ha (4%). Actual irrigated area under cultivation is about 2 million ha (12% of total irrigable area). Of the actual irrigated area, the area under cotton production is 0.600 million ha (30%). **Water losses in irrigation** amount to approximately one

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<sup>13</sup> This section draws extensively on the Turkmenistan Country Situation Paper, prepared by the DC, Dr. M. Nepesov.

<sup>14</sup> Babaev, *ibid.*, p.218. "A traditional region of irrigation is Central Asia where irrigation has been existing for a number of millenniums".

third of the water drawn, with efficiency of water use being no more than 60 percent. Total water consumption is increasing, partly due to increasing population and partly due to the deteriorating irrigation system and the development of new land for grain production. The large amounts of water taken from the Amudarya river have contributed to the decline of inflows into the Aral Sea and the resulting acute environmental and health problems. In Turkmenistan, practically all irrigation systems are constructed in the earthen beds which lead to high seepage losses from irrigation canals and to the rise of the groundwater table. At present, the area of irrigated lands in the country with the **groundwater** lying at the depth from 1.5 to 2.0 m is 411,300 ha. These lands are potentially prone to waterlogging and salinization. **Drainage water** is a hazard for the environment because it contains not only a high salt content, but it also contains poisonous chemicals, defoliants, chemical fertilizers, and heavy metals. The runoff was estimated as 6.62 km<sup>3</sup>. **Salinization of soils** is mainly due to saline surface and rise in underground water table. More than 60 percent of irrigated soils of Turkmenistan have medium to high degree of salinization. The degree of soil salinization of irrigated farm lands is divided into following classes:

non-saline	4.6%	medium saline	53.8%
slightly saline	28.5%	severe and very severe saline	13.1%

16. The **quality of drinking water** is also affected by mineralization. According to the approved standards for drinking water quality, water with salt saturation up to 1 gram per liter is permitted for human needs and saturation of 3-5 gram per liter is the standard for the sheep and goats, up 5-7 gram per liter could be used for camels. At the same time, the water mineralization in most of the wells is up to 10-15 g/l and higher. Therefore, the use of atmospheric precipitation and fresh water lenses serves as a natural source of water in the desert.

17. **Desert rangelands** in Turkmenistan are degraded due to rapacious exploitation of plant resources. It is a typical process among other types of environmental degradation. The rate of rangeland degradation depends on grazing intensity. Different livestock species affect grazing lands in a different way. Sheep affect stronger herbaceous vegetation; camels mainly pluck shrubs and semi-shrubs. There are three phases of rangeland degradation. Vegetative cover is slightly changed on the first phase. On the second and especially on the third phase plant composition is fully changed. Presence or absence of different plant species could be used as indicator of rangeland degradation. The Karakum desert pastures were provided with seven water pipelines about 250 km long, covering about half of all the available pastures. However, extension of watering facilities has been affected by the rise in mineralization of the groundwater.<sup>15</sup> The nature of the distribution of pastures between farms is of a major importance, when organizing the rational utilization of the natural fodder resources. The desert pasture animal breeding has a number of drawbacks – the small reserves of fodder, the seasonal nature of their utilization over a considerable territory, the large fluctuations in the reserves over years and seasons, and the inadequate water supply in a number of regions.

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<sup>15</sup> Dr. Babaev estimated that the pastures of Turkmenistan were using 5,203 wells, 54 boreholes, 336 springs, and over 600 structure on takyr for collecting atmospheric precipitation. Babaev, *ibid*, p.216.

**Table 3. The extent of degraded rangelands by region**

Area of degraded rangelands in Turkmenistan, km <sup>2</sup> (statistics -January, 1993)	<i>Degradation classes</i>			Total
	Slight	Moderate	Severe	
<i>Velayat</i>				
Akhal	41,433	42,401	2,412	86,246
Balkan	43,116	43,583	6,470	93,169
Dashkhovuz	20,336	39,905	903	61,144
Lebap	44,428	26,766	2,007	73,201
Mary	46,982	22,153	5,461	74,596
Total	196,295	174,808	17,253	388,356
%	50.5	45.0	4.5	100

Source: Turkmenistan Country Situation Paper.

18. Degradation of forests is caused by excessive cutting, poaching, unwarranted use of forest products etc. For instance, tugai forests have been destroyed by stubbing and by burning; these former forest lands are used for cultivating cotton. In the low part of the Amudarya valley tugai forests degrade because of reduction of river flow. So the area of tugai forest was reduced during 14 years (1978-1992) by 5.5 thou hectares.

19. To conclude, land degradation is caused by the interaction of human activity with fragile ecology in pursuit of agricultural intensification, and technogenic factors to develop roads, industrial construction, drilling of wells, and gas extraction complexes. Vegetation is often destroyed in the process. After the construction of the Karakum Canal new technogenic land-forms have appeared, in particular: dams, sand dumps, excavations, fields of dried up sill, gullies etc. In the zone of irrigation agriculture 6,000 hectares of farm lands have been destroyed by excavation of gravel, sand and other building materials. On the coasts of the Caspian Sea, gas-mains and oil conduits are flooded because of the Sea level raise. The most severe forms of land degradation however relate to the loss of vegetative cover, salinization and water pollution and inefficient use of irrigation water.

### **C. The economic costs of land degradation**

20. The National Action Programme to Combat Desertification in Turkmenistan (NAP/CD) provides a structured estimation of the economic losses caused by desertification in Turkmenistan, which is also included in the Country Situation Paper (CSP) for Turkmenistan by Dr. M. Nepesov. A copy of this section of the CSP is provided for ready reference as Annex 2. A summary overview of the estimated economic costs of land degradation in Turkmenistan is given below. The direct losses are assumed as income foregone, while the indirect losses are in terms of the estimated costs of rehabilitation or control. These two types of costs are estimated on account of:

#### Direct Costs

- (i) animal production foregone on grazing lands;
- (ii) agricultural production on irrigated farmlands;

- (iii) agricultural production on dry farmlands;
- (iv) loss of wood in degraded forests;
- (v) loss of other forest products;
- (vi) loss of fish production due to contaminated waters of lakes and rivers.

Indirect Costs

- (i) costs of rangelands rehabilitation;
- (ii) costs of rehabilitation of degraded irrigated farm lands;
- (iii) costs of rehabilitation of degraded dry farm lands;
- (iv) costs of rehabilitation of degraded forests;
- (v) costs of control of wind erosion;
- (vi) costs of control of water erosion and mud flows.

21. Total annual direct economic losses are estimated at US\$ 112.87 million, while total costs of rehabilitation are estimated at US\$ 234.00 million, providing an estimated total (annual) economic loss of US\$ 347 million. The above estimates do not include economic losses from land degradation impacting on future generations, loss of biodiversity, loss genetic pool of plants and animals, decline of living standards, loss of recreational lands. The estimates need to be updated to current level of degradation and prices and refined through a more comprehensive study by the Desert Institute, with some technical assistance by UNEP, which was perhaps involved with the local group of experts in the first exercise.

### **III. Implementation of the UNCCD**

#### **A. NAP process in Turkmenistan**

22. Turkmenistan joined the UN Convention to Combat Desertification in 1995 and ratified it in 1996. The National Action Programme to Combat Desertification in Turkmenistan (NAP/CD) was prepared in 1996 by the scientists of the Desert Research Institute, with support from the United Nations Environment Programme (UNEP). The NAP is a well structured document, which covers the country's physical environment and resources; socio-economic development, human-induced desertification, strategy and plan of action, and programs of high priority to combat desertification. The basic goal of the National Action Program to Combat Desertification (NAPCD) is determination and assessment of the present state of natural economic potential of Turkmenistan in the transition conditions to market relations, revealing of indicators of desertification processes and tendencies of their development, elaboration of scientific but economic factors affecting the restoration of degraded landscapes and use of nature resources based on ecological principles. Its brief concluding section emphasizes some important points of particular relevance in the context of the current slow pace of implementation of the CCD:

- (i) Realization of the NAPCD needs a long period of time, and it would need to take into account changes in environmental, economic and demographic conditions and trends.
- (ii) On forecasts of climatologists, air temperature and evaporation will increase in Central Asia, which could further aggravate the problem of water scarcity in Turkmenistan.
- (iii) The successful implementation of NAP is intimately linked to the success in introducing the model of sustainable economic development in Turkmenistan.
- (iv) The effective implementation of NAP requires technical means and financial support. Initially, such support is needed from external sources, but over time domestic resource situation would improve with further development of the economy.

- (v) There are also difficulties in capacity building, especially in professional training and material resources such as equipment and facilities for research. Agricultural machinery used for desert reclamation has become obsolete and needs modernization. More attention is also needed to strengthening the system of ecological education of children, youth and adults.

## **B. The Focal Agency & Institutional Framework**

23. The Desert Research Institute, now renamed as the National Institute of Deserts, Flora and Fauna of Ministry of Nature Protection<sup>16</sup> (NIDFF) is the designated Focal Institution for the implementation of the UNCCD in Turkmenistan. The Institute, known in the Soviet era as Institute of Deserts was part of the Turkmen Academy of Sciences, and was established in 1962 in Ashgabat and has been recognized internationally since the 1960s as one of the premier centers for research on problems of desertification.<sup>17</sup> The National Focal Point for UNCCD is Dr. Muhamet H. Durikov, Head of the Laboratory of Forests & Rangelands, in the NIDFF. The Focal Institution, with the high level of expertise and experience at its command and with the support of the Ministry of Nature Protection, is in a strong position to lead the process of CCD implementation in Turkmenistan.

24. The NIDFF has been involved with a number of donor agencies, such as GTZ and UNEP, in the implementation of donor assisted programs. The Institute also maintains international scientific contacts with over 40 research institutions and governmental institutions in some 30 countries concerned with arid lands development in Asia and in other parts of the World. The Institute had till recent past provided facilities since 1978 for the “International Scientific Training Courses on Desertification Control” supported by UNEP. In 1984 the Institute was awarded the UNEP Silver Medal for achievements in arid area investigations and working out theoretical and practical methods of desertification control. *However, its research activities and programs are affected by funding constraints. The NIDFF is in a position to receive grants directly from donor agencies, avoiding bureaucratic bottlenecks in channeling of funds and their utilization.*

25. Turkmenistan has set up a unified coordinating and oversight mechanism for the environmental Conventions.<sup>18</sup> The National Commission for Implementation of UN Environmental Conventions and Programmes (CIC) was established in March 1999 by Presidents Decree under the chairmanship of the Vice-premier of the Cabinet of Ministers. Six working groups have in turn been established under the Commission, each dealing with a specific convention or other instrument ratified by the Government of Turkmenistan. The CIC therefore enables the government to fulfill its obligation concerning reporting on the implementation of these UN instruments for the environment. In addition, the CIC has been given responsibility to prepare and endorse national action plans and programmes in the area of environmental protection and rational resource management. *It seems that the CIC is not perhaps being used as a coordinating forum to exploit synergies between various conventions at the policy or programmatic levels.*

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<sup>16</sup> Address: Institute of Deserts, Fauna and Flora, 15, Bitrap Turkmenistan Street, Ashgabat, Turkmenistan-744000. The current Director of the Institute is Dr. Paltamed Esenov. The NFP/CD is: Dr. Durikov Tel: (99-312) 357 298. Fax :(99-312) 353.716. Email: [crsptur@online.tm](mailto:crsptur@online.tm)

<sup>17</sup> Its extensive research has covered: Protection of Engineering against Sand Drifts and Deflation; Afforestation and Stabilization of Shifting Sands; Agricultural Reclamation of Sands; Desert Rangelands and their Improvement; Qualitative Assessment of Fodder Resources; Arid Soils, their Classification Study; Water Resources of Deserts; and Remote-Sensing Techniques employed to Study and Protect Environment.

<sup>18</sup> Turkmenistan has ratified the following environmental conventions: UN Convention on Biological Diversity (1996); Vienna Convention for the Protection of the Ozone Layer (1993); Montreal Protocol on Substances Depleting the Ozone Layer (1993); UN Framework Convention on Climate Change (1995); UN Convention to Combat Desertification (1995); and Basel Convention on Trans-boundary Movement on Hazardous Wastes and their Disposal (1996).

### C. Strengthening NAP process and participatory approaches

26. Three types of issues arise in connection with strengthening the implementation of the CCD in Turkmenistan. These are:

- (a) The stand-alone nature of the NAP, with limited collaborative inter-agency activities, except perhaps on some joint research projects of the Desertification Institute with other research partners. *The integrated approach to implementation of cross-cutting programs is not evident. An important problem area is the fragmented responsibilities for environmental protection and natural resource management.*
- (b) Absence of structured linkages between the NAP and the national, provincial, district and local levels of Government. Annex 3 gives an overview of governance structures at national and sub-national levels. Their involvement is essential for effective implementation of NAP/CD activities at local levels. However, implementation of CCD rests with the Desertification Institute with its few field research stations/activities. There is need to strengthen links between the Deserts Institute and the governance structures at provincial, district and local levels involved with agricultural and rural development, for the implementation of community based activities to combat land degradation as an integral part of local rural development programs, including community-based local area development pilot projects. An important constraint to the introduction of effective participatory approaches is that so far, the Government has not been able to set up representative institutions to ensure that the local executives at the regional and local levels are accountable to their constituencies. Another constraint is the lack of clear policy on decentralization. No clear legal distinction is made between the functions that are performed under the de-concentrated authority, and the functioning of the decentralized apparatus. The distribution of functions between the velayats and the urban and rural districts is also not clearly stipulated.
- (c) Limited interaction with NGOs or civil society organizations based on participatory approaches. Turkmenistan has ratified the Aarhus Convention on Access to information, Public Participation in Environmental Matters. It also has a policy to encourage public participation in environmental matters. However, civil society organizations are still in a nascent stage. The NGOs are also mainly in the form of professional bodies. There are perhaps few NGOs working directly with the rural communities. The main constraint to the participation of NGOs is that while Turkmenistan has the legal framework enabling NGO participation in public affairs, such laws are not consistently applied. For instance, NGOs experience difficulties in obtaining registration due to inconsistencies between regulations, laws and decrees. Thus, NGOs can not operate effectively in the absence of approved legal status.<sup>19</sup> Thus, the current legal situation prevents NGOs from engaging in a number of activities and from raising funds, which makes them entirely dependent on the good will of the Government. Since the Government appears to be somewhat reluctant to continue civil society development, external assistance in that area is minimal. USAID maintains a modest democracy program in Turkmenistan to encourage citizen participation, foster democratic concepts, and facilitate access to information and community development/self-help activities.<sup>20</sup>

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<sup>19</sup> World Bank, Minutes of Round Table discussion with NGOs, held in Ashgabat on May 17, 2000. Annex- 3 to Country Assistance Strategy for Turkmenistan, December 22, 2000.

<sup>20</sup> ADB, Turkmenistan, Economic Report and Interim Operational Strategy, May 2002, Appendix 5.



27. The NAP devotes separate sections to “Desertification and the Social Response” and to local knowledge and experience in desertification control. Neither of these however lays stress on participatory approaches to NAP implementation. However, it sites the negative consequences of ignoring social dimensions of push towards agricultural and irrigation expansion in arid lands without adequate drainage which created an ecological disaster in the province of Dashkovuz, contributing to its poverty and health hazards. The NAP recognizes that local populations have developed a traditional technology of desertification control based on century-old experience. Box 2 summarizes some of the best practice examples of that local knowledge. *This information about local knowledge and practices could form a good building block for designing community based initiatives to combat location-specific land degradation with the active participation of the local people. The local techniques could be further improved in the light of the outcomes of scientific research.*

28. *In this context, it is recommended that the Focal Institution (NIDFP) may promote participatory action-research type activities:*

- (i) *to attract the local population to the pilot projects with the purpose of using their knowledge and skills in the field of revival of national-traditional methods and technologies in combating desertification.*
- (ii) *to pay particular attention to promoting activities involving women in the implementation of NAP/CD.*

29. Synergies between the NAP-CD and other Rio Conventions and NEAP: The importance of promoting synergies is recognized by the NAP. However, the mechanisms to realize this need to be worked out within the framework of the National Commission for Implementation of UN Environmental Conventions and Programmes (CIC). NAP should also link up with the ongoing process of preparation of a National Environmental Action Plan (NEAP).

30. Capacity building needs of National Focal Point and of Focal Institution for UNCCD. Capacity building support is urgently needed to strengthen the capacity of the NFP and of the Focal Institution. The NFP and the Focal Institution (NIDFF) or Deserts Institute for short) have already in hand a number of project concepts and some programs which are awaiting financing. *They need capacity building support to upgrade these proposals to donor agencies requirements, for translation, and for production of reports in English. The Institute also needs support for some of its scientists to have more advanced training/ exchange visits abroad to further hone their analytical skills. In situ training is needed in orienting the experts into participatory methods of on-farm and applied action research to bring the NAP process closer to the grassroots. The Institute also needs to upgrade and enhance its equipment and research infrastructure at headquarters and at its field stations.*

**Box 2: Turkmenistan: Local Knowledge and Practices to control Desertification**

1. **Traditional system of grazing** was based on free ranging, without fencing, but grazing lands were used in turn. Flocks of sheep usually were formed of one race, that was important for planning of movements of flocks, especially by seasonal transhumances. Herdsmen as a rule cut for fuel dead-wood far from villages.

2. **Harvesting fresh water underground.** Country folk have also developed original methods of water use and conservation of water resources. Special underground tunnels ("kyariz") were dug at the foot of mountains to intercept the underground waters and to conduct them to the plain. Runoff water was harvested on "takyr" (clay surface). Collected water could be stored in special earth pits ("kak"), in brick cisterns ("sardoba") or in special wells ("chirli"). To keep the surface of takyr smooth it was cleaned and swept. Construction of houses on takyr and movement of flocks were forbidden.

3. **Rain fed agriculture.** Land used in rain-fed agriculture (bogara) was tilled across the slopes to prevent erosion. Agricultural crops were cultivated only on gentle slopes.

4. **Tree planting.** Trees of rapid growth and high transpiration (Populus and Salix species) were planted along irrigation canals. These plantings prevented filtration of water and raise of ground waters.

5. **Salinization control.** A method of "dry drainage" was used in salinization control. This method consisted in collecting and removing of salt crust from the surface of soil. After that, soil was covered with "weathered earth" taken from old "duval" (earth fences) or from earth walls of old houses. Lucerne was used in weed control. Soil was dug over and over again, this measure destroyed weeds and reduced evaporation.

6. **Earth fences** were constructed in oases to protect fields from sand drifts and dry winds.

Source: Turkmenistan NAP, p.52

#### IV. Policy framework

31. The main policy issues in the context of UNCCD are:

- A. Macro Policy Agenda
- B. Strategy to improve living standards
- C. Legal Framework
- D. Natural Resource Management and Environmental Policies
- E. Agricultural Policies
- F. Water Conservation Policies
- G. Evolving a cohesive Strategic Policy Framework

##### A. Macro Policy Agenda

32. Following a People's Council resolution of December 1992, the Government adopted a 10-year transition and stabilization period before prices, trade, and enterprise activity would be left to be determined primarily by market forces. Subsequently, in December 1999 the Government published the National Program of Socio-Economic Development up to 2010 (the 2010 strategy). The strategy identifies four primary goals: (i) economic independence that implies a high rate of economic growth with macroeconomic stability, economic diversification and efficient use of resources, privatization and support for entrepreneurship based on guaranteeing ownership rights, and integration into the world economy along with promotion of foreign investment; (ii) food security based on increasing the supply of domestically produced foodstuffs, and strict quality control of agricultural exports and imported food products; (iii) enhanced social security, safeguarding of labor rights, and provision of employment for the population; increased real incomes of workers; strengthened social safety net for the vulnerable segments of the population; and guaranteed inviolability of private ownership; and (iv) ecological safety to ensure that industrial development takes account of environmental concerns, prevention of an ecological disaster in the Aral Sea region, provision of high-quality drinking water for the population, safe use of chemicals in agriculture, and prevention of soil erosion and salinity (see Box 1).

33. However, Turkmenistan's pursuit of policy reform agenda has been halting and gradual – the pace of reform judged by international community as the slowest in the Central Asian region. The rationale for this cautious approach to structural reforms is explained by the objective of minimizing social disruption and dependence on external sources. Reducing dependence on exogenous factors has been difficult given the predominance of primary production, and the nature of the inherited transport

infrastructure, in particular the pipeline and rail networks, which only permit restricted access to external markets. The Government is working to overcome these constraints by trying to diversify the economic structure and export destinations, and searching actively for alternate supply outlets for these exports. Economic diversification has shown some progress with 30% of raw cotton now being processed domestically and a sharp increase in the production of oil products from the recently renovated Turkmenbashi refinery. The success achieved in establishing alternate export outlets for gas has been limited as only one new pipeline to Iran has come on-stream and the direction of foreign trade, while undergoing some change, is still concentrated on the Russian Federation and CIS countries. In its attempt to minimize social hardships and disruption, the Government has tried to maintain the living standards for its population by providing high levels of subsidization for basic goods and services, such as water, gas, electricity, and salt, which are provided free or close to free to households.<sup>21</sup> The priority areas of the unfinished structural reform agenda of the Government include liberalizing the exchange rate regime and improving public resource management – including stronger debt management, budget consolidation, a more rational use of extra-budgetary funds, and addressing issues inhibiting private sector and financial sector development. *In the area of environmental management, policy incentives to prevent overuse of water resources and control of land degradation and pollution need greater attention within the overall policy framework. There is an inherent contradiction between a policy of mandating large growth targets for outputs of various commodities, such as cotton, and improving water use efficiency and conserving the environment.*

## **B. Strategy to improve living standards**

34. The Governments emphasis on ensuring access of the people to basic goods and social services has helped maintain improved living standards and cushioned the poor from adverse impact of low real wages and disguised unemployment or underemployment. Water, gas, fuel and flour, as well as social services, are close to free. However the policy of maintaining one of the highest levels of subsidization of basic goods in the region does raise certain potentially troubling issues for the Government to consider from the perspective of long term sustainability of this approach.<sup>22</sup>

- *High Non-Transparent Costs:* Maintaining these large and non-targeted subsidies is highly expensive for the Government. The costs are largely not transparent, because they are primarily paid by the providing agency which may in turn receive subsidized inputs. Nevertheless, the costs are real and make it very hard for the providing institutions to operate on a commercial or efficient basis.
- *Low Degree of Targeting:* Most of the subsidized services are not well targeted, and it is unclear who benefits most from them. This is partly because the Government budget is not fully consolidated, and so the overall incidence, equity and efficiency of spending are hard to assess. Nevertheless, although disputed by the Government, there is reason to believe that the bulk of the benefits may go to those who are better off. For example, the better off tend to have larger homes with more water pipes, while the poorer groups have to hand carry water from wells or rivers.
- *Poor Quality and Maintenance:* The lack of payments for the maintenance and improvement of services has led to generally poor quality services, and there are few alternatives even for those willing and able to pay. For instance, basic medicines are often not available, water and gas pipes are ill-maintained, and the quality of water supplies is low. These problems contribute to the low health indicators and the extent of “capability” poverty in the country. Fortunately, there is some

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<sup>21</sup> ADB, Turkmenistan, Economic Report and Interim Operational Strategy, May 2002.

<sup>22</sup> World Bank, A Profile of Living Standards in Turkmenistan, 2000 (Report No. 21656 TM).

evidence that the health status of the people may be improving somewhat, but the situation may be getting worse in some other respects: for example, enrollment rates in both preschool and higher education are declining and there are concerns about the quality of general education.

*Limited Opportunity:* The alleviation of poverty is about more than just providing the means for survival through subsidization. It is also measured in access to opportunity. By this standard, the poverty situation is serious and may be seen in a number of ways. For example, the level of unemployment particularly among the young is quite high; in the agricultural sector, farmers are still highly circumscribed by many administrative regulations, despite the ongoing land reform program; and there are few mechanisms for enabling the poor to benefit effectively from most of the country's huge export earnings from the energy sector.

### C. Legal Framework

35. The legal system in Turkmenistan is still in a process of transition. A consistent and harmonized body of laws and regulations is not yet available. Despite the adoption of the new Constitution in 1992, certain laws and regulations of the former Soviet Union remain in force, sometimes contradicting more recent laws. Implementing regulations for some important laws that have been only recently passed such as the Criminal Code (1998) and the Civil Code (1998) are still missing. The apparent lack of knowledge and/or understanding from some government officials on the content of new laws is an additional constraint to their application. According to the 2010 strategy, the Government intends major legal and judicial reforms. Among them are the passing of the criminal and procedural code, the law on courts, the law on the office of the public prosecutor, as well as the law on legal profession and the legal status of lawyers. USAID intends to help the Government strengthen the professionalism and ethical practices of lawyers, and provide increased access for citizens and officials to Turkmen and international legislation. The World Bank aims to increase information quality and dissemination. According to the 2010 strategy, the Government intends major legal and judicial reforms. Among them are the passing of the criminal and procedural code, the law on courts, the law on the office of the public prosecutor, as well as the law on legal profession and the legal status of lawyers. USAID intends to help the Government strengthen the professionalism and ethical practices of lawyers, and provide increased access for citizens and officials to Turkmen and international legislation. The World Bank aims to increase information quality and dissemination.

36. As regards Nature Conservation related legislation, some 50 legislative regulations from the Soviet Period were adopted by the Turkmen Mejlis (legislature), comprising among others the Nature Conservation Law, Land Code, Water Code, Forest Code, Sanitary Code, Conservation of Wild Life and Plant Resources. The Government had passed new laws for instance in the context of its land use reforms -- laws of Turkmenistan "On daikhan farms" (1994), "On peasant amalgamations" (1995), "On land leasing by foreign states" (1995) and "On grant land into citizens' property for conducting goods/agricultural production" (1996).<sup>23</sup> A draft water law is currently under consideration that would provide the legal basis for introducing water charges. The main characteristics of the legislation in Central Asia, including in Turkmenistan, are:<sup>24</sup>

- (i) characteristics of the competence of the government bodies in management, use, and conservation of a natural objects, and division of functions between the Government, ministries, regional and local government bodies is carried out;

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<sup>23</sup> Turkmenistan Country Situation Paper.

<sup>24</sup> Vladimir Mamaev, Ph.D., Woods Hole Group, Inc., *Sustainable Development in Central Asia: Assessment and Challenges of Agenda 21*, Zero Draft Report, August 16, 2001.

- (ii) The rights for natural resource use, types of use, terms, nature use licensing, duration of use, natural resource monitoring procedure, its cadastre, structure, and the system of payments;
- (iii) Measures of legal responsibility for the breach of these laws; and
- (iv) International cooperation in conservation and use of natural resources

37. In the above context, the main limitations of the legislation are: serious inconsistencies in legislation, weak administrative capacity to implement the law and considerable scope for bureaucratic discretion in application of laws and regulations. They can be overcome by efforts over time to plug the loopholes and enforce compliance. Legislative reform, reviewing the old and outdated acts and passing new ones, is an ongoing process. There is need for rationalizing and improving environmental legislation, particularly with a view to strengthening the provisions with respect to enforcement of quality standards, usage norms, and pollution control measures. *The challenge is how to transform existing legislation to the needs of transition to market relations and adopt a new set of laws and regulations more appropriate to the process of policy reforms.*

#### **D. Natural Resource Management and Environmental Policies**

38. Natural resource management practices in agriculture, irrigation, forestry and pastures have contributed to the problems of land degradation and pollution. There is a large common ground between approaches to sustainable natural resource management and measures to combat desertification. Major environmental problems in Turkmenistan are the deterioration of water and soil resources, particularly the increasing levels of soil salinity, soil erosion, and declining water quantity and quality. Turkmenistan has built an extensive network of irrigation canals channeling water from Amu Darya to its plains and oases. Sedimentation in reservoirs and irrigation canals in Turkmenistan is a persistent problem that cannot be solved without regional cooperation. Soil erosion in upstream countries contributes considerably to the high concentration of silt in the Amu Darya River.

39. It is necessary to identify basic weaknesses in policy, legislative and institutional frameworks to promote environmental friendly natural resource use. Several important constraints to effective management of the environment and natural resources remain:<sup>25</sup> (i) The existing legislation on the administration and management of environment and natural resources has a fragmentary nature, responsibility allocated to too many government agencies. For example, the Ministry of Nature Protection and Ministry of Environment have a fragmented charge over inter-connected issues of sustainable natural resource management and responsibility for water resource management is shared by more than nine national agencies (including the ministries of water economy, water supply and purification, agriculture, environment, and health). (ii) Turkmenistan has no comprehensive land use plan. Many of the problems could have been foreseen and avoided, or at least their negative impact minimized with an effective land use plan based on environmental assessment and corresponding management procedures. (iii) The current national policy provides water services without user charges. (iv) Many officials still believe that traditional engineering work (often large-scale and extremely expensive) is the only solution, and do not pay enough attention to small-scale alternatives. (v) Inadequate institutional capacity in terms of both technical and management skills has hindered effective policy analysis and implementation. (vi) Another constraint is inadequate funding for both construction of new facilities and for operation and maintenance of existing ones. The Government is currently engaged in preparation of the National Environmental Action Plan (NEAP), which is expected to impart a certain degree of cohesion to the strategies and

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<sup>25</sup> ADB, Turkmenistan, Economic Report and Interim Operational Strategy, May 2002.

actions for national environment management and for control of land degradation which constitutes a major component of national environmental concerns.

## **E. Agricultural Policies**

40. Turkmenistan is a predominantly desert country in which climatic factors limit the agricultural potential. The total arable area amounts to only four percent of total available land resource. Almost 80% of the country is extensively grazed desert pasture. Cropped area is virtually all irrigated. The endowment of irrigated crop land is less than one hectare per rural person. Agriculture remains an important source of employment and export earnings; in 1998 one quarter of export revenues derived from cotton. Over half of the population is rural, and just less than one half of the labor force is employed in primary agriculture. Yet agriculture contributes only about one quarter of GDP, suggesting that labor employed in agriculture is significantly less productive than in other sectors. However, national accounts are very approximate, and agriculture's share may be underestimated.

41. State Order System. The two major crops, wheat and cotton, are produced and marketed under a state-order system – a system under which the Government sets procurement prices and production targets. The state also provides inputs at subsidized prices and credit at zero or markedly below-market rates -- producers of these crops are entitled to receive a 50% subsidy on purchases of fertilizers, chemicals, fuel, transport, machinery services and other purchased inputs. In addition, there are no charges for irrigation services and water.<sup>26</sup> Producers also receive a 30% advance payment on contracts for cotton and wheat, with the remainder payable upon delivery. The main organization for marketing cotton is *Turkmenpahta*, whose main functions are purchasing raw cotton from farmers, operating ginneries, and selling cotton fiber to foreign buyers. Turkmenpahta is also responsible for producing and supplying seeds to farmers, and providing fertilizers, as well as technical advice to producers on production and irrigation processes. For wheat, the system is administered by the Turkmen Bread Association. The association provides seeds and fertilizers to farmers; owns mills, storage facilities; and shops; and participates in each stage of the production and distribution process. The announced goal of the state order system for wheat is to ensure self-sufficiency, as well as to provide bread to large groups of the population at subsidized prices.

42. Under the Government's programs for achieving self-sufficiency in food grains, land allocated for wheat production increased after independence from 195.5 thousand hectares in 1992 to more than 741 thousand in 2000. About 1,700 thousand tons of wheat were produced in 2000, more than 200 thousand tons above the target set under the state-order system. Increased wheat production has reduced imports for wheat and flour. Reportedly, the authorities are planning to increase wheat production to about 3 million tons by 2010. Yields per hectare have remained low, below 2.6 tons/ha from 1992 to 1998, though official statistics indicate improved wheat yields of 3 tons/ha in the past couple of years. The area allocated to other crops that are outside the state order system (vegetables, potatoes, fruits) has declined since independence.<sup>27</sup>

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<sup>26</sup> In principle, these subsidies are supposed to offset the implicit taxation of low producer prices.

<sup>27</sup> The actual pattern of production, in contrast, emphasizes low yielding and low value products. Just under half of the planted area (45%) is devoted to grains. By international standards, grains offer relatively low value per hectare, particularly at the yield levels observed in Turkmenistan. Another 38% of the planted area is devoted to cotton, a higher value crop, but cotton area is down from 49% of the planted area in 1991. Horticultural products can offer higher value per hectare than grains or cotton, and prior to independence Turkmenistan was a major producer and exporter of fruits and vegetables for more northerly regions of the USSR. Production and trade in these products declined markedly in the 1990s with the dissolution of the USSR, and has not recovered. Source: World Bank, Turkmenistan: An Assessment of Leasehold-Based Farm Restructuring. 2001. World Bank Technical Paper No. 500.

43. Leasehold-Based Farm Restructuring. The Government of Turkmenistan has chosen a unique approach to land reform and farm restructuring unlike the procedures and mechanisms adopted by other former Soviet republics. There is no distribution of former collective land into paper certificates of entitlement (“land shares”), as throughout most of the former Soviet Union, nor is there physical division of agricultural land into individual plots leading to abolition of collective structures, as in Armenia, Georgia, and partially in Moldova. Instead, the collective holdings are being transformed gradually and from within through a process of dividing collective land into plots that are leased to families while retaining the overall collective structure. The process does not involve transfer of land ownership from the state to the collective. All agricultural land remains in state ownership, but the leased plots eventually may be privatized if the leaseholders show a satisfactory record of performance for at least two years. In the interim, the land remains within the collective structure, but the former collective farm (kolkhoz) is formally reorganized into an entity called peasant association (daikhan berleshik).<sup>28</sup> At present, there are 595 peasant associations, 965 daikhan farms, 785 subsidiary farms, enterprises, and organizations, and more than 7100 private goods producers and over 600, 000 families on their personal subsidiary farms in the Turkmenistan farm sector.<sup>29</sup>

44. Main issues in agriculture sector policies. Overall, the institutional setting for agriculture in Turkmenistan remains fairly administered. With some landholdings being transferred to private ownership, and expansion of livestock and non-strategic crops on household plots, the private sector has made some advance in agriculture in recent years.<sup>30</sup> However, the main issues which would need to be addressed in the context of leasehold-based land reforms are: (i) the individual farming is restricted by persistence of state orders, which also circumscribe the financial independence of leaseholders; (ii) state orders impose a severe tax burden on agriculture; (iii) there is need for transition to secure tenure rights in land; and (iv) the land reform process should ensure easy transferability of land among individuals in the interest of creating optimal farm sizes. *The peasant associations retain central role in monitoring and control over the leaseholders. These should be transformed into a technical and extension support structure for the farm units with emphasis on participatory modes of such farm units cooperating in activities to tackle land degradation problems.*

45. Pastures and Livestock. The position of pastures and livestock in the policy changes is not altogether clear. From the Soviet period a new system of rotation grazing was introduced and methods of range improvement and range seeding were also developed and tested. Collective farms practiced storing of forage for use in dry season. The NAP has proposed selection of new fodder plants, foundation of pasture protective zones, use of mineral fertilizers, transformation of seasonal round ones, seeds sowing, pastures’ amelioration for combating degradation of rangelands. *Creation of all the year round pastures is one of the priority projects included in the NAP. However, leasehold-based farm restructuring policy is not clear about the treatment of rangelands or livestock. Many cattle have been transferred to the household sector, but the households have not been provided with enough land to support an adequate feed base. As part of the creation of the peasant associations, much of the formerly collective herd was to be transferred to the ownership of the peasant livestock management system Turkmenmally, but the position of the livestock management is not clear. Considering the weight of the livestock in the rural economy, the above issues need urgent consideration of the Government.*

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<sup>28</sup> World Bank Technical Paper No. 500, *ibid*.

<sup>29</sup> Turkmenistan Country Situation Paper.

<sup>30</sup> ADB, Turkmenistan, Economic Report and Interim Operational Strategy, May 2002. Appendix 2.

## **F. Water Conservation Policies**

46. From the perspective of combating land degradation, water resource management policies play a crucial role. Water resources management requires tackling a wide range of issues, none of which has straight forward solutions:

- (i) Irrigation water use efficiency issues.
- (ii) Domestic water distribution issues.
- (iii) Freshwater and potable water supply.
- (iv) Regional water sharing policies.
- (v) Issues of water pollution.

47. The water resources management issues are complex. First, the issue is multidimensional, involving not only aspects of water quantity and quality per se, but also sedimentation, soil salinization, and erosion. Second, the issue is complicated by the fact that it expands beyond national borders. Hence, effective long-term solutions will depend not only on Turkmenistan's own efforts but also on regional cooperation. Among the most urgent issues requiring regional cooperation is the ecological damage to the Aral Sea and sedimentation problems in downstream countries. At the heart of these issues is the overuse of water to irrigate crops (cotton fields mainly) and a lack of incentives for individuals and businesses to conserve water. This overuse has increased the salinity of the soil with resultant soil degradation and reduction in crop yields. It has also contributed to the shrinking of the Aral Sea. *The issues of water resource management in Turkmenistan, however, are very much linked to the issue of agrarian reforms and agricultural practices.*

48. The issue of soil and water degradation is very complex. Turkmenistan is almost entirely dependent for both drinking and agricultural water on the Amu Darya, a river which travels from Tajikistan through Turkmenistan and Uzbekistan to the Aral Sea in Kazakhstan. With 95% of water used for irrigated agriculture, Turkmenistan has built an extensive network of irrigation canals channeling water from Amu Darya to its plains and oases. The largest is the 1,100 km Karakum Main Canal (KMC). The government also is embarking on creating the so-called Golden Lake, which would capture irrigation drainage from a vast area in the lower Amu Darya Basin with uncertain economic benefit and environmental consequences. *The nature of the transboundary water system determines that the long-term solution to effective water management in Turkmenistan will depend on not only the country's own efforts but also regional cooperation among the riparian states of the Amu Darya basin. This has made the water issue in Turkmenistan more challenging and complicated, given the predicable difficulties and uncertainty in terms of sharing maintenance costs and responsibilities, which could prevent the gains from joint management to be achieved.*

## **G. Evolving a cohesive strategic framework to combat land degradation**

49. Turkmenistan's medium term development goals to 2010 provide a strategic framework for evolving a cohesive framework to combat desertification/land degradation. *The NAP-CD was prepared in 1996 and it would be useful to revise it in terms of its policy and program content and bring them closer to the 2010 strategic goals.* Currently, the Ministry of Environment is engaged in preparation of the National Environment Action Plan. It will be desirable that the NFP/CD collaborates with that exercise so that the NAP's policy and program content is aligned to the broader policy framework for environmental management.

50. *To conclude, at the institutional level, implementation is affected by weak government structure and institutions. There is duplication of functions among different ministries and state institutions. This*



*blunts the role of policy making. Another constraint to effective policy reforms is the inadequate institutional capacity for policy analysis and implementation which, coupled with funding constraints, tends to subdue decision-making opting for change in the status-quo. Implementation is also affected by inadequate channels to transmit clear directives on policy shifts and decisions on delegation and de-concentration of functions down the line of administrative hierarchies. Interrelation and distribution of responsibilities between central and local authorities still needs to be improved. The participation of civil society also needs to be strengthened. Thus, policy and program implementation need to move forward hand in hand.*

## **V. Priorities and Programs to Combat Land Degradation**

### **A. Priorities of the Government to combat land degradation**

51. The NAP focuses on a number of technical issues requiring further research or studies. The main priority areas are summarized below:<sup>31</sup>

- The investigation of regularities of desert landscapes development\_(classification and mapping, degradation mechanism, retro monitoring, man and nature interaction).
- The problems of protection arid ecosystems (protection of rare and vanishing species of plants and animals; unique nature monuments; use of recreation resources; population's ecological education and training).
- Combating of soils salinization (elaboration of new agrotechnical water preserving technologies, biological melioration method, crop rotations, use of mineral and organic fertilizers).
- Plant-growing development of sands and sandy lands (classification of plants habitat conditions, selection of new crops species, use of progressive technologies including sprinkler and dropping irrigation).
- Elaboration of progressive technologies of enrichment of rangelands\_(selection of new fodder plants, foundation of pasture protective zones, use of mineral fertilizers, transformation of seasonal round ones, seeds sowing, pastures amelioration).
- Elaboration of new technologies on stabilization and afforestation of moving sands (the investigation of new astringents, foundation of forest-belts, elaboration of new finds of mechanical protections for stabilization of moving sandy surfaces).

52. NAP's focus on the above priorities is well placed. However, there is need for the Focal Institution (Deserts Institute) to undertake an internal exercise to rank them with reference to outcomes of earlier and ongoing research. *Preference may be given to research areas which are closer to field testing through community-based pilot projects. This could be done through a state of art study to be conducted by the Deserts Institute, which may be supported by an interested donor agency.*

53. Ongoing programs to combat desertification/degradation. Section 4 of the Country Situation Paper (CSP) discusses a number of ongoing activities and programs. For convenience of reference, this Section of the CSP is included as Annex 4. Some of these activities have completed their current phase or exhausted the external assistance which supported them. These may however be considered for continued assistance. The projects are listed below:

- The UNDP/UNSO project to build awareness about NAP-CD activities in some of the districts in the Mary and Dashoguz Vilayats, including preparation and publication of

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<sup>31</sup> Turkmenistan Country Situation Paper.

popular booklets on combating desertification, such as stabilization of moving sands along the highway Ashgabat – Dashoguz in the area of Bakhardok settlement. The activities involved participation of local populations and school children.

- GTZ/NIDFF/GEOPLAN Project “Community-based resources management., with the following objective: “In view of promoting the implementation of the CCD the population as well as the local decision makers in the pilot areas have improved their self-help potential in a joint learning process of all actors and are empowered to make use of it.” GTZ has since approved phase 2 (see next Section).
- Caspian Regional Thematic Canter on “Combating Desertificationn.<sup>32</sup> The objectives of the Centre are to prepare outcomes, recommendations and further technical assistance for the Caspian Strategic Environmental Action Plan in terms of desertification. This includes the following works in all five littoral countries: (i) assessment and mapping of desertification phenomena; (ii) research of Desertification Hot Spot areas; (iii) causal analysis of current desertification; (iv) further desertification and risk forecast; (v) socio-economic implications; (vii) institutional legal, technical needs; (viii) development of combating desertification measures.

54. New priority project proposals. The Domestic Consultant provided project briefs for project proposals which are considered of high priority by the Government for TA support by interested donors. The three project proposals were duly considered and endorsed by the working group of the Commission on UN Conventions, under the Cabinet of Ministers, for realization as a part of the NAP of Turkmenistan. These briefs are provided in Annex 5. The proposals are summarized in table 4 below.

**Table 4: New priority project proposals**

<b>Project</b>	<b>Brief project description</b>	<b>Implementing Agency/funding</b> <sup>33</sup>
1. Protection of the most important economic structures from sand drifts in Karakum Desert	On the base of field survey and experience of the National Institute of Deserts it is planned to stabilize drifting sand around roads and technical constructions in the north-east region of Turkmenistan using mechanical stabilization and phyto-reclamation. Location: Lebap and Dashaguz Velayats, Turkmenistan	National Institute of Deserts, Flora and Fauna of the Ministry of Nature Protection (NIDFF)  Estimated project costs: \$ 1,557,450. Earlier assistance sources/ contacts GTZ
2. Construction and testing a solar generator for pumping out and refreshing water in Central Karakum.	To construct and test a solar generator for pumping out and refreshing water in Central Karakum desert in order to support livestock breeding farms with drinking water for human and animals and doing this to contribute to the even use of rangelands and reduce overgrazing and improve livelihood of local people . Location: Karrykul, Bakharden etrap, Akhal velayat, Turkmenistan	NIDFF  Project Costs: N.A.  Earlier assistance sources/ contacts : UNDP/UNSO
3. Melioration of saline soils in Tagty Etrap, Dashoguz Velayat, Turkmenisyan	The main point of the project is rehabilitation of soil fertility in root layer. This will be achieved by conducting several measures on soil melioration and agrotechnique. Hydrological study will be also carried out.	NIDFF  Project Costs: \$ 11,745,300 Earlier assistance sources/ contacts GTZ

<sup>32</sup> GEF has under implementation a regional project: “Addressing Transboundary Environmental Issues in the Caspian Environment Programme”, under International Waters Focal Area, with GEF grant of \$8.34 million-see Annex 6.

<sup>33</sup> All three proposals had been submitted to UNEP in 1996.

## **B. Assistance to Turkmenistan from external donor agencies.**

55. Turkmenistan, notwithstanding its oil and gas resources, has needs for external development assistance to meet its considerable real sector investment needs to modernize and diversify its economic structure. However, external assistance flows are inevitably linked to the need to ensure an appropriate enabling policy environment without which such assistance would not yield sustainable outcomes. Even though Turkmenistan 2010 strategy recognizes the need for policy reforms, it has adopted a gradual and cautious approach to the implementation of structural reforms. Turkmenistan does not have an agreed framework, on the pattern of a nationally-owned joint PRSP type process, for a broad-based *growth-cum-social stability and well being strategy* to serve as a common platform for a structured policy dialogue.<sup>34</sup> *The Government's dilemma is the while the social benefits in the short-term of its current policy are clear and promote a sense of socio-political stability, the trade offs between such benefits and the longer term economic costs of this policy are difficult to estimate. The development partners perhaps need to move on the premise that the Government does wish to move towards market based reforms but is hesitant on the issues of sequencing and management of a difficult transition process. In this context, decisions to provide external assistance for investments in real sectors such as controlling land degradation, irrigation & drainage infrastructure, increasing productivity of crops, pastures livestock, and capacity building would help lay the foundations to speed up structural policy reforms.*

### **Declining trend of Official Development Assistance (ODA)**

56. According to United Nations estimates, total official development assistance commitments for projects and loans operational in 1999 in Turkmenistan amounted to \$355 million. About 80% of this represents capital assistance in investment projects provided mainly through loan agreements. Grant-financed TA accounts for the remaining 20% of concessional inflows. In terms of sector allocation, the environment sector has attracted the largest share (22%) of the total reported grant projects operational in 1999, followed by enterprise and industry (19%), and health (14%). Housing and social services along with trade and commerce received only 2.9 and 0.6% of the total. The trend however looks disappointing as estimated bilateral and multilateral financing changed from \$4.8 million in 1999 to \$21.4 million in 2000 and decreased to \$3.1 million in 2001. This reflects the uncertain relationship of Turkmenistan with the donors, both bilateral and multilateral.

### **The World Bank**

57. As of July, 2001, the World Bank commitments to Turkmenistan totaled US\$ 90 million for 3 projects – institution building TA project (\$25 million approved in 1995, urban transportation project (\$34 million- in 1997), and water and sanitation project in the Dashovuz region (\$30 million- in 1997). Total disbursements as of July 2001 amounted to \$31 million (34%). No further lending was extended from FY98 to FY00 due to (i) a misprocurement issue which took more than a year to resolve and suspended both new lending and disbursements on existing loans (this suspension was lifted in June 1999) and (ii) a negative pledge clause violation<sup>35</sup> which was identified in 1998 and continues to prevent new lending. All three ongoing projects have experienced problems due to (i) procurement and implementation difficulties and (ii) failure to achieve adequate institutional change.

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<sup>34</sup> From the perspective of poverty reduction, Turkmenistan has a significantly low incidence of poverty. Based on the threshold of \$2.15/day, the poverty incidence in Turkmenistan in 1998 was estimated at 7%, compared to 68% in Tajikistan, 49% in Kyrgyz Republic, and 5.7% in Kazakhstan. Of course, this masks serious income inequalities in Turkmenistan, but the subsidy-based social safety net generates a feeling of well being in the population which structural reforms are bound to upset.

<sup>35</sup> Turkmenistan has recognized the problem with collateralizing other lenders over the Bank and has issued a Presidential Decree prohibiting such practices. The transportation project loan was since cancelled.

58. The key priority goals outlined in the World Bank's 1997 CAS — budget and debt management, rural development, trade and foreign exchange liberalization, and privatization of larger enterprises — remain outstanding issues. The new Country Assistance Strategy (CAS 2001-2003)<sup>36</sup> identifies five key priorities for future work: strengthening public resource management, improving health and social services, developing an efficient rural economy, supporting private sector development, and protecting the environment. However, pending resolution of issues relating to its ongoing lending operations, the World Bank will help Turkmenistan primarily through non-lending analytic support. In particular, the Bank will continue its non-lending analytic support program to strengthen economic management capacity within the government, increase transparency of public resource management, improve living standards monitoring and social assistance targeting mechanisms. In the area of environment, the World Bank's non-lending activities will focus on helping the Government with the preparation of the National Environment Action Plan (NEAP) and a comprehensive water strategy. The CAS also proposed help in hosting of a "National Economic Forum", which would facilitate information sharing both within and outside the Government. However, the CAS observed that given the weak reform progress and the loan clause violation, "it is likely to prove extremely difficult for the Bank to extend new loans in the near term".

### **The International Monetary Fund (IMF)**

58. Turkmenistan has not sought IMF financial support. IMF provided TA and training to strengthen the institutional and human resource capacity needed to implement fiscal management, monetary policy, and effective CBT operations. The next round of Article IV consultations, which was initially scheduled for the third quarter of 2000, has not been completed due to a lack of access to balance of payments, external debt, and budget data.

### **The Asian Development Bank (ADB)<sup>37</sup>**

59. The ADB's Interim Operational Strategy (IOS) for Turkmenistan, adopted in May 2002, indicates that its operations during 2002-2004 would focus on three strategic objectives: (i) enhancing human and social development; (ii) supporting sustainable and stable economic growth in Turkmenistan; and (iii) promoting regional economic cooperation. These objectives are conceived within the overarching goal of the gradual and sustainable increase in living standards of the Turkmen population. ADB operations will proceed gradually, through selective interventions in a limited range of sectors, in consideration of (i) ADB's relevant experience in other CARs, (ii) opportunities for collaboration with other external aid agencies and for mobilizing cofinancing, and (iii) the Government's overall reform commitment in the relevant sectors. The ADB's approach to its operations will be one of active engagement and dialogue with the Government, in order to assist and encourage reform and progress in the critical medium-term period. ADB may be able to play a role in helping the Government plan and implement needed reforms, initially focusing on a limited number of sectors.

60. ADB's assistance to Turkmenistan will initially focus on capacity building, strengthening key institutions, and developing the managerial and technical skills of government staff, to improve public sector resources management, and the planning, implementation, and monitoring of development projects. Such support will be provided through training programs and advisory TA grants, which will be important in establishing a meaningful collaborative relationship between the Government and ADB. The range of ADB's resources will be drawn upon, through participation in regional activities and external training and conferences convened by the ADB Institute, as well as country-level activities. The IOS envisages a tentative level of TA operations of \$2.5 million per year. As for its lending operations, the groundwork will be laid through the annual country programming missions, which will be undertaken following the approval and adoption of the IOS. The missions will determine the specific lending and TA operations for each year of a three-year rolling plan.

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<sup>36</sup> World Bank, Country Assistance Strategy for Turkmenistan, December 2000.

<sup>37</sup> ADB, Turkmenistan Economic Report And Interim Operational Strategy, May 2002.

61. ADB would collaborate with other external aid agencies in the context of its technical assistance and lending operations. The IOS indicates a number of potential opportunities for collaboration, such as: (i) TA for banking and public sector financial management with TACIS; (ii) TA to support the initial implementation phase of the new public procurement law; (iii) TA for decentralized municipal management improvement with UNDP; and (iv) assistance to improve water resources management with Islamic Development Bank (IsDB), Japan International Cooperation Agency, and World Bank.

### **Global Environment Facility (GEF)**

62. The current project portfolio of GEF includes 5 projects in Turkmenistan and 3 regional projects (see Annex 6 for details). Of the five projects, 1 relates to the Biodiversity, 3 to Climate Change, and 1 to Ozone depletion. Three of the projects are for “enabling activities” related to Biodiversity and Climate Change conventions. Of the 3 regional projects, 2 (Water and Environmental Management in the Aral Sea Basin, and Addressing Transboundary Environmental Issues in the Caspian Environment Programme), though related to the focal area of “international waters,”<sup>38</sup> do address the issues of land degradation. It is, however, expected that with the land degradation having been designated as a GEF focal area, the NFP-CD would make effort to identify national projects related to land degradation which would qualify for GEF financing. *More immediately, GEF assistance could be accessed for enabling activities for preparation of initial proposals for GEF financing under the NAP-CD.* There is considerable scope for building a pipeline of GEF able projects in the focal area of “land degradation”, with support from interested donor agencies/ GM, but this would require the NFP to be proactive in pursuing this matter.

### **United Nations Development Program (UNDP)**

63. The UNDP’s Country Cooperation Framework (CCF) is intended to support the Government’s 2010 programme, based on four areas of priority: **economic security, food security, social security and ecological security**. The second CCF identifies areas of common interest with the intention of building on areas of success. Furthermore, this CCF will seek to maximize impact through programmes that (a) match national priorities with UNDP areas of competence and comparative advantage; (b) address critical constraints in the viable areas of economic and managerial transformation; and (c) leverage significant additional resources either as cost-sharing or in parallel<sup>39</sup> In this context, the UNDP launched in 2000 an umbrella project (US\$ 440,000) aiming to provide support for the Turkmen government in the implementation of the CCF and to serve as a vehicle for rapid response to the Government’s identified needs for policy and project implementation studies and programmes. More specifically, in the environment area, UNDP has supported a number of projects (see Box 3). Turkmenistan is being used as a major supply route for channeling relief to northern regions of Afghanistan.

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<sup>38</sup> GEF has designated “land degradation, primarily desertification and deforestation”, as a focal area.

<sup>39</sup> UNDP in Turkmenistan on the UNDP web-site.

### **Box 3: UNDP Projects in Turkmenistan supportive of Environmental Conventions**

1. **National Environmental Program of Turkmenistan.** The Project reviews, evaluates and updates many existing environmental provisions, consolidating those elements that are successful and reforming those that are weak. It strengthens the institutional capacity for environmental management in Turkmenistan. It also provides for a number of pilot scale activities through which new processes are tested before being applied nationwide and staff are trained and gain experience in new approaches and methodologies. The outcome will be an effective institutional framework within which continuing environmental protection and management can be undertaken effectively.

2. **Aral Sea Basin Capacity Development Project.** This is to be attained through: strengthening the EEC of IFAS to implement and further develop the Aral Sea Basin Program; developing practical methodologies and supporting effective institutional arrangements to apply the concept of sustainable development to land and water use. Public participation issues and the role of NGOs/community groups will be mainstreamed in the above two components to increase the involvement and awareness of civil society, grassroots organizations, and the general public in the Aral Sea Basin issues. This project is part of the integrated UNDP assistance to the Aral Sea Basin.

3. **Caspian Environment Program.** The proposed World Bank-executed project will be composed of four specific Subcomponents: (i) investment identification and pre-preparation; (ii) institutional strengthening and training for project preparation; (iii) matched small-grants program; and (iv) project management. The development of priority investment portfolios (PIP) for transboundary priorities - is a key element of the GEF regional project.

4. **Support to Agenda 21 Process in Turkmenistan** (\$ 50,000), implemented by the National Commission on the Implementation of UN Environment Conventions and Programme under the Ministry of Environment Protection of Turkmenistan. The project will target both national and local level initiatives. At the national level, it will build and strengthen the capacities of the newly established National Commission on UN Environmental Conventions (CIC) to make it fully functional and capable of implementing its current mandate. At the local level, in three selected districts, the project will support local community development and public participation in to local decision making processes as well as strengthening NGO/CBOs capacity to implement priority environment and SD projects.

5. **Improvement of local self-government system in Turkmenistan.** The main objective of this project is further enhancement of democratization in the governmental systems, establishment of conditions that enables the equal opportunity for both men and women in the velayats and etraps to realize their constitutional rights as it pertains to participation in the state management. The project is therefore, aimed at increasing the level of peoples' participation in decision making process and adjusting local authorities activities with the peoples' needs.

6. **Biodiversity Strategy Action Plan (BSAP).** The main objective of this project is to assist the Government of Turkmenistan in preparing a National Biodiversity Strategy and Action Plan (BSAP) that will analyze the major issues affecting biological diversity, identify strategic priorities and actions to protect ecological systems, and the integration of conservation and sustainable management of biological diversity into development plans of the Turkmenistan Republic.

### **Islamic Development Bank (IsDB)**

64. IsDB has made commitments in Turkmenistan totaling \$26.35 million for the construction of the Turkmenbashi hospital, construction of an oil tanker, and rehabilitation of the Ashgabat to Mary road cofinanced with EBRD and the Kuwait Fund. TA totaling \$0.27 million has also been provided for an irrigation canal feasibility study. Several other investment projects are in different stages of processing.<sup>40</sup>

### **European Bank for Reconstruction and Development (EBRD)**

65. EBRD, which has financed more than half of the total lending by IFIs to Turkmenistan, had, as of 31 December 1999, signed four projects totaling \$156 million. These projects include a credit line for SME development, a loan and equity investment to expand the textile plant created by the Gap-Turkmen

<sup>40</sup> Information on IsDB, EBRD and Bilateral assistance is based on an excellent review of external assistance provided in ADB, Economic Report and Interim Operational Strategy for Turkmenistan, May 2002.

joint venture, a loan for the development of offshore hydrocarbon fields, and financing for the reconstruction of Turkmenbashi port. In addition, 24 technical cooperation projects have been completed or approved that focus on feasibility studies for infrastructure projects. In view of the Government's slow progress toward economic and political reform, EBRD has put public sector investment projects on temporary hold and now focuses exclusively on private sector development.

### **Bilateral Assistance**

66. **The US** is the largest bilateral donor in Turkmenistan. Most of the funding is channeled through USAID. USAID funding for 1999 amounted to over \$6.5 million and remained unchanged in 2000. The activities are directed primarily at four priority areas, health services and reforms, development of civil society, human resource development for SMEs, and budget reforms. Through the Central Asian American Enterprise Fund, the US Government finances loans to SMEs and provides equity capital to Turkmen private business ventures. Since beginning operations in 1996, the fund has approved financing of over \$20 million. The US EXIM Bank has also extended \$424 million in short-term trade credits. Procedural problems, for example the issuance of exit visas for program participants, and difficulties in entering into a policy dialogue with the Government, have led USAID to review its program in the country.

67. **Turkey's EXIM Bank** has provided a credit line of \$91 million, which has been fully utilized. About half the amount was used for contracts undertaken by Turkish companies in food processing and construction, and the balance spent on imports from Turkey. In addition, the Turkish International Cooperation Agency assisted, among others, in developing a highway and promoting wheat production. Following the 1999 earthquake in Turkey, funding was reduced.

68. **The Japan Bank for International Cooperation** provided a \$40 million loan for modernization of the Ashgabat locomotive depot, and carried out feasibility studies for the transshipment terminal in Serakhs and a railway management information system. It extended loan support for a polypropylene production plant in Turkmenbashi and is currently holding discussions with the Government for possible involvement in various information technology projects. Japan International Cooperation Agency provides assistance mainly through the provision of various training opportunities in the fields of communications, finance, environment, transportation infrastructure, and resources development.

### **Support to UNCCD implementation from SPA partners**

69. **Germany (GTZ)** is providing support, under the Strategic Partnership Agreement framework, through the GTZ-CCD-Project: "Support of selected Pilot-Projects for poverty alleviation and combating desertification in Central-Asia". In Turkmenistan, the GTZ is at the operational planning stage of the second phase of the pilot project. Supported by the GTZ CCD Project, its first phase started in 1998. Activities were mainly focused on strengthening the participation of the local population concerned, environmental awareness raising and education as well as on participatory natural resource management activities. The project's implementation will be continued in three bio geographic regions of Turkmenistan: the Central Karakum Desert (Yerbent), a mountainous area (Nohur), and Mary oasis (Sakar-Chaga). Exchange of experience as well as information of the public will also be carried out at the national, regional and international levels. The project is being implemented by the CCD focal institution (NIDFF). According to the GM-FIELD data base, Germany provided in 1995 support to the Desert Institute (NIDFF) for "participatory desertification control" program the tune of US\$ 5,167,500.

70. Canada's contribution to the SPA partnership focuses on the synergy between climate change and desertification through funding opportunities presented by the South Europe/Central Asia Climate Change Support Fund, especially in the areas of adaptation to the adverse effects of climate change and carbon sequestration. Pilot projects for this purpose are yet to be identified in Turkmenistan.

71. ICARDA has also joined SPA. It is supporting a number of agricultural research activities in the CARs. For instance, ICARDA has taken special initiatives towards crop diversification for sustainable agricultural development in Central Asia and the Caucasus. A number of crops are being promoted in the region, such as potato, soybean, cowpea, rice, maize, safflower, sunflower, rapeseed and alfa-alfa. In this context, new germplasm has been arranged from different countries and international centers. Some of the varieties of these crops have been made available to the collaborating institute, the Agricultural University of Turkmenistan. ICARDA also held in March 2002 a short-term regional training course on "Drainwater reuse strategy with management consideration of soil physio-chemical properties" in Ashgabat in collaboration with the Ministry of Agriculture of Turkmenistan.<sup>41</sup>

### **C. Support for sub-regional/regional programs to combat land degradation**

72. A number of donor agencies have provided technical assistance to strengthen regional cooperation in areas of relevance to UNCCD. For instance, the World Bank, GEF, UNDP, TACIS and GM are involved in the Aral Sea Basin Program. The ADB has provided RETA for the 'Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement Projects' (PREGA). ADB has also provided RETAs to support the preparation of the Regional Environment Action Plan (REAP) for Central Asia, and the Regional Strategy and Action Plan for Sustainable Mountain Area Development in Central Asia. USAID has under implementation a Central Asia Natural Resources Management Project (NRMP) to promote greater regional cooperation in the management of Central Asia's water, energy and land resources. UNDP Regional Aral Sea Basin Capacity Building Project has played a key role in the establishment and promotion of regional cooperation under the ISDC umbrella. The project has provided the resources necessary for ISDC activities. This Project has now been completed and leaves a vacuum in terms of support for the ISDC. The Swiss have been assisting the CARs through a "Central Asian Mountain Partnership(CAMP) – a long term programme of the Swiss Agency for Development and Cooperation (SDC) implemented by the Center for Development and Environment (CDE) of the University of Berne. There are number of other donor agencies involved with supporting various regional cooperation initiatives. As listed in Annex 6, GEF has in its portfolio three regional projects, which also include Turkmenistan. Turkmenistan hosts the Center for implementation of the Caspian Environment Program.

73. ADB's Interim Operational Strategy mentions the following three potential possibilities for Turkmenistan's likely interest in seeking support for regional projects:

- (i) The Government has asked ADB to take up the rehabilitation work to improve the road from the town of Atamurat to the Afghanistan border at Imam-Nazar, approximately 115 km, is badly in need of rehabilitation. The road presently serves as a key route for international aid relief operations via Turkmenistan to the Afghan city of Mazar-i-Sharif.
- (ii) Turkmenistan's excess power generation capacity offers a potential source of supply and the relatively short distance requires only a modest investment.
- (iii) Longer-term efforts will be required for channeling the abundant oil and gas reserves of Turkmenistan to new export markets in South Asia, but these also promise substantial long-term rewards.

74. The REAP for Central Asia lists for regional cooperation a project on "Organization and support of the regional network of stationary posts for desertification monitoring, with the participation of

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<sup>41</sup> CAC (CGIAR Collaborative Research Program for Central Asia and the Caucasus) News - January-March 2002 & October-December 2001 Issues, PFU, Tashkent.



Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Turkmenistan". *In the context of Tajikistan inter-state coordination with Uzbekistan and Turkmenistan is important to resolve shared problems of water, energy and pasture utilization.*

75. In light of slower than anticipated progress of policy reforms, a number of aid agencies have recently reduced their level of activity. Since there is no Consultative Group for Turkmenistan, and the World Bank's idea of an Economic Forum has not yet materialized, Turkmenistan does not have a structured mechanism for coordination of development assistance. However, the World Bank's CAS indicated the possibility of partnerships between the donor agencies and the World Bank for different sectors as follows:

- IMF on budget, macro-economics, and tax codes
- USAID on budget improvement, and the water strategy
- UNDP on debt management, NEAP', and the water strategy
- UNICEF on health and the water strategy
- TACIS on tax codes, training, and international accounting
- UK possibly on living standards and statistics
- Japan and Switzerland on the NEAP
- EBRD is collaborating closely with IFC on several private sector studies
- ADB possibly on the water strategy and public procurement

76. ***To conclude***, the preceding review shows that Turkmenistan has substantial needs for invest support from development partners, but the two major constraints to this are its absorptive capacity and its lack of progress on much needed governance and structural policy reforms. These constraints also are likely to affect the resource mobilization efforts for combating desertification. However, Turkmenistan has done considerable serious work in search for solutions to combating desertification. The CCD focal institution has also presented some credible proposals for grant financing (see discussion in Section A of this part and Annex 4 and 5) to further advance its research. The Desert Institute also appears to have a sound track record and expertise, notwithstanding limited language skills in English, to implement its research programs. External support could help reorient its work and make it participatory and demand driven from the rural communities. Further, the Desert Institute under its mandate can receive grant funds directly from donor agencies. Assistance to CCD implementation may leverage incremental policy changes in areas which impact most directly on the rural poor and their productivity and incomes. The donors who have been involved in the environmental sectors are: World Bank, UNDP/GEF, USAID, Germany (GTZ), Switzerland, and Japan. Much of their involvement is in the context of NEAP, water strategy, and Aral Sea and Caspian Sea Program. ADB is expected to become an important donor to Turkmenistan with potential for support to combating land degradation as a crosscutting issue in the context of the priorities indicated in its IOS.

## **VI. Issues & Opportunities in implementing UNCCD in Turkmenistan**

### **A. Obligations to support UNCCD/NAP under the Convention**

77. This Part pulls together the main conclusions from the extensive review and discussion in the preceding Parts on the progress, problems and the issues constraining effective implementation of the UNCCD in Turkmenistan. The conclusions are organized in the form of issues that need particular focus and the opportunities which exist to further enhance the progress in effective implementation of the UNCCD at the national and regional levels. The conclusions have been framed against the overarching perspective of the cross-cutting and participatory approach and the obligations of both the developing and developed member countries set out in the Convention to Combat Desertification (CCD) - see Box 4

The Convention obligates the affected countries not only to prepare NAPs but also take effective steps, including provision of appropriate budgetary resources, for the implementation of the activities and projects in the NAP to combat desertification. It also obligates the developed country parties to assist the developing countries in these efforts.

**Conclusion no. 1:** *It is observed that implementation of a number of programs included in Turkmenistan's NAP framework is held up for want of financial resources. This situation needs to be reviewed at senior levels by the Government to make necessary financing from domestic resources available for the priority programs to combat desertification. As for the development partners, a limiting factor is many donors have scaled back their operations in the country because of slow progress on policy reforms. Even so, there is a strong rationale for the multilateral and bilateral donors to finance activities which are directly or indirectly supportive of UNCCD objectives through a **conscious support** to UNCCD through the NAP framework. This might provide a good entry point to help trigger policy dialogue on policy issues which relate to sustainable management of ecology and environment.*

#### **Box 4: UNCCD – Approach and Obligations of the Parties**

##### **Approach**

Combating desertification is essential to ensuring the long-term productivity of inhabited drylands. Desertification occurs because dryland ecosystems are extremely vulnerable to over-exploitation and inappropriate land use. This Convention aims to promote effective action through innovative national and local programmes and supportive international partnerships. Drawing on past lessons, the Convention states that these programmes must adopt a democratic, bottom-up approach. They should emphasize popular participation and the creation of an "enabling environment" designed to allow local people to help themselves to reverse land degradation. Of course, governments remain responsible for creating this enabling environment. They must make politically sensitive changes, such as decentralizing authority, improving land-tenure systems, and empowering women, farmers, and pastoralists. They should also permit non-governmental organizations to play a strong role in preparing and implementing the action programmes. In contrast to many past efforts, these action programmes are to be fully integrated into other national policies for sustainable development. They should be flexible and modified as circumstances change. The need for coordination among donors and recipients is stressed because each programme's various activities need to be complementary and mutually reinforcing.

Desertification is primarily a problem of sustainable development. It is a matter of addressing poverty and human well-being, as well as preserving the environment. Social and economic issues, including food security, migration, and political stability, are closely linked to land degradation and drought. So are such environmental topics as climate change, loss of biological diversity, and freshwater supplies. The Convention emphasizes the need to coordinate research efforts and action programmes for combating desertification with these related concerns.

##### **Obligations**

By acceding to the CCD, a State becomes a Party to the main international instrument dealing with the urgent global problem of land degradation.

There are four principal categories of obligation under the terms of the CCD and its regional implementation annexes:

- The common obligation of all Parties, including those unaffected by desertification, are spelled out mainly in articles 3, 4, 12, 14, 16, 17, 18, 19 and 20. They relate principally to international cooperation in implementing the CCD at all levels, particularly in the areas of the collection, analysis and exchange of information, research, technology transfer, capacity building and awareness building, the promotion of an integrated approach in developing national strategies to combat desertification, **and assistance in ensuring that adequate financial resources are available for programmes to combat desertification and mitigate the effects of drought.**

- Country Parties affected by desertification in Africa, Asia, Latin America and the Caribbean, and the Northern Mediterranean undertake to prepare national action programmes and to cooperate at the regional and subregional levels.

- Other affected country Parties have the option of preparing action programmes following Convention guidelines, or more generally of establishing strategies and priorities for combating desertification.

- Developed country Parties have, under article 6, article 20 and other articles, specific obligations to support affected countries (particularly but not exclusively affected developing countries) by providing financial resources and by facilitating access to appropriate technology, knowledge and know-how.

- Parties are obligated (article 26) to report on measures they have taken to implement the Convention. Parties which have prepared National Action Programmes are obliged under article 10 to provide regular progress reports on their implementation.

## **B. Improving the understanding of the root causes of land degradation**

78. “Land degradation” is a complex phenomenon involving reduction or loss of biological or economic productivity of arable lands or capacity of pastures, forests and forest blocks under the impact of natural or anthropogenic factors. Land degradation is triggered off by erosion, overgrazing, salinization, and pollution. The Turkmenistan NAP identifies a number of priority areas for applied research, including possibilities to build on local knowledge (see Section A of Part V and table 4). Considering the funding constraints, it is suggested that priority should be established on the basis of criteria, which give preference to pilot action-research projects involving active participation of local communities. It is recommended that the following priority areas may be considered over the medium term for TA support for research or study on pilot basis:

- information and monitoring systems of select desert landscapes;
- new agro-technical water preserving technologies to control soils salinization, through participation of local communities/ NGOs;
- improvement of rangelands and quality of fodder resources; and
- testing new technologies on stabilization and afforestation of moving sands.

**Conclusion no. 2.** *Land degradation is caused by the interaction of human activity with fragile ecology in pursuit of agricultural intensification, and technogenic factors to develop roads, industrial construction, drilling of wells, and gas extraction complexes. Vegetation is often destroyed in the process. The most severe forms of land degradation however relate to the loss of vegetative cover, salinization and water pollution and inefficient use of irrigation water. Search for sustainable solutions requires medium to long-term commitment to applied research and experimentation in location specific contexts with active participation of local beneficiaries.*

## **C. Institutional factors constraining implementation of NAP**

79. As discussed earlier, implementation of NAP is constrained by its weak policy and program content, and by institutional weaknesses. There are also weaknesses of project conceptualization and development capacity. Besides, three types institutional constraints have slowed the implementation of NAP:

- (a) The stand-alone nature of the NAP, with limited collaborative inter-agency activities, and lack of integration with national budgetary and policy planning processes and strategies.

- (b) Absence of structured linkages between the national, provincial, district and local levels of Government.
- (c) Limited interaction with NGOs or civil society organizations based on participatory approaches. NGOs, where these exist, have difficulties in getting registered, which makes it difficult for them to effectively operate as legal entities.

**Conclusion no. 3.** The stand-alone nature of the NAP, with limited inter-agency collaboration, except perhaps on some joint research projects of the Desertification Institute with other research partners, limits effective implementation of CCD. The integrated approach to implementation of cross-cutting programs is not evident. An important problem area is the fragmented responsibilities for environmental protection and natural resource management. Policies on role of local government authorities, decentralization and NGO and civil society participation need to be clarified.

#### **D. Policy and legislation related constraints**

80. The Government's 10-Year National Program "Strategy of Socio-Economic Developments in Turkmenistan for the Period up to 2010" embodies four primary goals of state policy: (i) Economic Independence; (ii) Food Security; (iii) Social Security; and (iv) Ecological Safety. Although the goal of economic independence stresses achieving economic growth through private sector, the Government has adopted a cautious and gradual approach to structural reforms. The economic growth is driven by oil and gas sector, but prudent and transparent management of oil resources remains an outstanding issues. Partly due to the negative experience of the mid 1990s, the Government has opted for a target driven approach to achieving self reliance in wheat production and maintaining high level of cotton production under a state order system. The social services, food, gas, water and inputs are provided based on a high level of across the board subsidies. As a consequence, IMF, the World Bank and many other donors have stopped or scaled back their assistance to Turkmenistan.

81. As regards Nature Conservation related legislation, some 50 legislative regulations from the Soviet Period were adopted upon independence. The main limitations of the legislation are: serious inconsistencies in legislation, weak administrative capacity to implement the law and considerable scope for bureaucratic discretion in application of laws and regulations. The legislative changes are an evolving process and emphasis needs to be placed not so much on promulgating new laws as on strengthening the compliance and enforcement of the existing legislation, plugging the loopholes, which dilute strict enforcement. Another critical area is the need to harmonize different laws to avoid overlapping jurisdictions, or inherent contradictions.

**Conclusion no. 4.** *The priority areas of the un-finished structural reform agenda of the Government include liberalizing the exchange rate regime and improving public resource management – including stronger debt management, budget consolidation, a more rational use of extra-budgetary funds, and addressing issues inhibiting private sector and financial sector development. In the area of environmental management, policy incentives to prevent overuse of water resources and control of land degradation and pollution need greater attention within the overall policy framework. There is an inherent contradiction between a policy of mandating large growth targets for outputs of various commodities, such as cotton, and improving water use efficiency and conserving the environment. Another constraint to effective policy reforms is the inadequate institutional capacity for policy analysis and implementation. From the perspective of UNCCD, particular attention needs to be paid to the issues of land and water user rights and regulating the functioning of participatory mechanisms, such as water users associations and*

*credit unions. The laws are often too generic, or too loosely framed, as to make compliance difficult in the absence of authoritative interpretation, or detailed bylaws or regulations.*

## **E. Constraints to effective program development and implementation**

82. This section looks at two main issue areas relating to overcoming the constraints affecting program development and implementation of the UNCCD: (i) how to overcome the constraints to the mainstreaming of NAP as the main instrument to implement the Convention; and (ii) how to improve the involvement of donor community in the implementation of the UNCCD.

83. The main constraints may be summarized as follows:

- The NAP is thin on policy and programs content with regard to attention to investment needs in sectors, though it contains number of proposals on research programs requiring grant financing.
- Reliance on “stand alone” projects or activities aimed at combating desertification, rather than incorporating these activities as components of cross-sectoral programs of ministries, such as Agriculture, Livestock, Water Resources or Forestry.
- Issues such as soil erosion, salinization, water logging, wind erosion, or loss of vegetative cover need more comprehensive and cross-cutting approaches requiring involvement of a number of agencies and active participation of local populations.

84. The responsibility for external assistance is distributed among several government agencies, without a coordinating point. Furthermore, the institutional capacity for public investment planning, project implementation and coordination of external assistance is weak. In light of slower than anticipated progress of policy reforms, a number of aid agencies have recently reduced their level of activity. However, Turkmenistan has done considerable serious work in research for solutions to combating desertification. The CCD focal institution (NIDFF) has presented some credible proposals for grant financing (see Annex 4 & 5). The Desert Institute also appears to have a sound track record and expertise, notwithstanding limited language skills in English, to implement its research programs. External support could help reorient its work and make it participatory and demand driven from the rural communities. Further, the Desert Institute under its mandate can receive grant funds directly from donor agencies. Assistance to CCD implementation may leverage incremental policy changes in areas which impact most directly on the rural poor and their productivity and incomes. The donors who have been involved in the environmental sectors in Turkmenistan are: World Bank, UNDP/GEF, USAID, Germany (GTZ), Switzerland, and Japan. Much of their involvement is in the context of NEAP, water strategy, and Aral Sea and Caspian Sea Program. ADB is expected to become an important development partner to Turkmenistan with potential for support to combating land degradation as a crosscutting issue in the context of the priorities indicated in its IOS.

***Conclusion no. 5.** The National Focal Institution (NIDFF) and the NFP-CCD have important capacity building needs in areas such as program development, exposure to other research networks working on arid lands, upgrading of research and computing facilities, communications and translation resources, and training in management and monitoring of implementation of crosscutting projects and programs. The NAP which was prepared in 1996 with UNEP assistance also needs to be revised and brought in line with current situation on the ground and changing policy perspectives. At the institutional level, implementation is affected by weak government structure and institutions. There is duplication of functions among different*

*ministries and state institutions. This blunts the role of policy making. Implementation is also affected by inadequate channels to transmit clear directives on policy shifts and decisions on delegation and de-concentration of functions down the line of administrative hierarchies. Interrelation and distribution of responsibilities between central and local authorities still needs to be improved. The participation of civil society also needs to be strengthened. Thus, policy and program implementation need to move forward hand in hand.*

## **F. The possibilities of greater GEF involvement in land degradation**

85. A new window of opportunity has opened with the amendment to the GEF Instrument “to designate land degradation, primarily desertification and deforestation, as a focal area, as a means of enhancing GEF support for the successful implementation of the UN Convention to Combat Desertification.” In order to avail of this opportunity, however, the NFP would need to work with other ministries or agencies to identify and build a pipeline of projects which may qualify for GEF financing. This basically implies projects which also address global environmental issues and include cofinancing from domestic and/or external sources in addition to GEF financing. In the context of land degradation – see box 5 for detailed criteria.

86. Turkmenistan may be able to get from GEF “enabling activity” grant for land degradation focal area, as it has obtained for the other two Rio Conventions-see Annex 3. ADB, as the GEF executing agency, could also be approached with proposals for national or regional programs, provided the Government is prepared to share the financing costs with or without cofinancing by other interested donors.

### **Box 5: The Elements of a GEF Operational Program for the Prevention and Control of Desertification and Deforestation through Sustainable Land Management<sup>42</sup>**

The main strategic considerations and operational principles that would guide the development of GEF-eligible activities could be summarized as:

- (a) Integrating conservation and sustainable use of land resources as a priority into overall strategic frameworks such as local, national, and sub-regional sustainable development plans, policies, and programs.
- (b) Helping people, particularly local communities, to protect and sustainably manage non-protected and inhabited dryland, forest, and mountain ecosystems, particularly in agricultural landscapes, through targeted and cost-effective interventions at local level.
- (c) Integrating sustainable land management interventions to achieve global environment GEF focal areas – biodiversity conservation, climate change, and international waters.
- (d) Building institutional capacity, from the community level to the national level where appropriate, to effectively address land degradation.
- (e) Developing a portfolio that encompasses representative non-protected ecosystems and people affected by land degradation.
- (f) Targeting and designing GEF activities which complement recipient countries agreed sustainable land management objectives, particularly at the community level, in strategic and cost-effective ways.
- (g). Early intervention in areas vulnerable to land degradation and rehabilitation of degraded areas.

<sup>1</sup> See documentation for the 20<sup>th</sup> Session of the GEF Council.

**Conclusion no. 6.** *A new window of opportunity has opened with the designation of “land degradation, primarily desertification and deforestation”, as a focal area, as a means of enhancing GEF support for the successful implementation of the UN Convention to Combat Desertification. To avail of this, the Government would need to identify suitable projects which meet the GEF selection criteria.*

**G. Forging strategic partnership among donors and domestic stakeholders**

87. The Strategic Partnership Agreement (SPA) between the GM, ADB, Germany and Canada, with anticipated joining of Switzerland, IFAD and ICARDA, offers new opportunities to enhance the implementation of NAPs and promote regional cooperation among CARS. Vigorous follow up of the outcomes of current RETA would provide the concrete instruments to forge strategic partnerships among donors and domestic stakeholders and also provide a coherent platform for the mobilization of resources for UNCCD in Central Asia.

## Turkmenistan-IACD

## ECONOMIC, SOCIAL and ENVIRONMENTAL INDICATORS

		1997	1998	1999	2000	2001
<b>A.</b>	<b>Income and Growth (GOT)</b>					
	1. GNP per Capita (\$, current)		540*	-	840	-
	2. GNP per Capita (\$ PPP)		2875*	-		
	Real GDP growth rate (%)	(11.4)	7.0	16.0	17.6	20.6
	3. Average annual growth of					
	industrial output (%)	(20.3)	1.3	16.0	60.0	27.0
	agricultural output (%)	20.6	24.4	26.0	22.0	22.8
<b>B.</b>	<b>Money and Inflation (GOT)</b>	<b>(annual percentage change)</b>				
	1. Inflation (period average in %)	83.7	16.7	23.5	7.4	5.6
	2. Broad Money (% of GDP)	7.8	11.0	10.6	13.0	12.9
<b>C.</b>	<b>Government Finance (GOT)</b>	<b>(percent of GDP)</b>				
	Overall Surplus/Deficit (-)	(0.2)	(2.7)	0.9	0.3	1.0
<b>D.</b>	<b>Balance of Payments (IFS)</b>					
	1. Trade Balance (million \$)	(231)	(523)	(291)	790	535
	2. Current Account Balance(% of GDP)	(21.6)	(32.7)	(18.0)	(13.0)	1.9
<b>E.</b>	<b>External Payments Indicators (IFS)</b>					
	1. Foreign Direct Investment(ml. \$)	108	125	100	131	170
	2. Gross Official Reserves (million \$)	1,285	1,379	1,607	1,854	1,935
	(months of Imports)	15.3	14.6	13.0	9.0	8.0
	2. External Debt Service(% of exports)	35.1	97.6	55.1	-	-
	3. External Debt (% of GDP)	50.6	61.1	53.9	-	-
	4. Official exchange rate (manat per \$ - end of period)	4,165	5,200	5,200	5,200	5,200
	5. Parallel market rate (manat per \$ - end of period)	5,350	12,100	15,000	21,000	22,000
<b>SOCIAL &amp; ENVIRONMENTAL INDICATORS</b>						
<b>Selected Social Indicators</b>			<b>Latest Year</b>			
Total Population (million)			5.6	2001		
Annual Population Growth Rate(% per annum, since 1991)			3.3	2000		
Density (persons per km <sup>2</sup> )			11.5	2001		
Urban population (% of total population)			46.0	2001		
Infant Mortality Rate (below 1 year per thousand live births)			19.1	2001		
Adult Literacy (age 15 and above) (%)			98.0	1999		
Population with access to piped water (%)			61.0	1999		
Urban			85.0			
Rural			42.0			
Public Expenditure on health (as a % of GDP)			2.9	1999		
Public Expenditure on education (as a % of GDP)			5.5	1999		
Human Development Index			0.7	1999		
<b>Selected Environmental Indicators</b>						
Area (000 km <sup>2</sup> )			491.2			
<b>As a % of Land Area</b>						
Arable land			4.0	2001		
Forest area			7.0	2000		
Total domestic energy consumption (million tons)			9.8	1996		
GDP per unit of energy use (\$ per kg oil equivalent)			0.2	1997		
Annual fresh water withdrawal per capita (cubic meters)			3,635.0	1999		
Source: ADB, Turkmenistan, Economic Report And Interim Operational Strategy, May 2002, Basic Data * World Bank, "Making Transition Work for Everyone", 2000.						



## Turkmenistan: IACD

### Economic Costs of Desertification

1. Desertification is a negative process destroying the productivity of agricultural lands. To prevent erosion, degradation of the vegetative cover, soil salinization etc. special measures should be conducted. They are given in Chapters 4 and 5. Rehabilitation of degraded lands also costs much trouble and much effort. So economic losses from desertification include many components.

2. Unfortunately not all losses could be calculated in terms of money on spite of that the authors have made an attempt on assessment of economic losses of desertification. In our opinion the economic losses of desertification include as follows:

- Direct losses (income foregone):
  - Loss of animal production on grazing lands;
  - Loss of agricultural production on irrigated farm lands;
  - Loss of agricultural production on dry farm lands;
  - Loss of wood in degraded forests;
  - Loss of other forest products;
  - Loss of fish production in rivers and lakes contaminated by water conducting from irrigated fields.
- Indirect losses:
  - Expenses on rangelands rehabilitation;
  - expenses on rehabilitation of degraded irrigated farm lands;
  - expenses on rehabilitation of degraded dry farm lands;
  - expenses on rehabilitation of degraded forests;
  - expenses on control of wind erosion;
  - expenses on control of water erosion and mud flows.

3. We don't calculate possible economic losses of future generations of people. These losses caused by desertification could include: loss of biodiversity, loss of genopools of plants and animals, decrease of living standard of people, loss of recreation lands etc.

4. The loss of animal production has been calculated in the following way. As known about 30,000 hectares of rangelands fully loss their productivity annually. Mean productivity of rangelands is 0.108 MT per hectare. So the total loss of forage is 3240.0 MT per year. By mean annual rate of forage 0.81 MT per sheep the loss of live-stock number totals 4,000 heads. According to standard rangeland management system used in Turkmenistan 4,000 heads of sheep could produce: 31,860 kg meat, 13,004 kg wool and 1,344 karakul skins. In terms of money that totals US \$ thou 160,6.

5. As to the direct losses of agricultural production it could be calculated by decrease of productivity of cotton, the main agricultural crop in Turkmenistan. Available information of losses of other crops is absent. Direct losses of cotton production vary depending on degree of land degradation. Calculation in cotton production in terms of money is given in table 1.

Table 1

**Economic losses due to decrease of cotton yield  
on irrigated farm lands of Turkmenistan in 1993, US \$**

Degree of soil salinization	Size of area, hectares	Decrease of cotton yield, percentage	Loss of raw cotton, MT	Loss of cotton fibre, MT	Economic loss US \$
Slight	166,586	15	49,976	16,658	17,057,8
Moderate	314,407	30	188,428	0,628	64,316,4
Severe	76,503	60	91,816	30,605	31,339,5
Total			330,210	47,981	112,713,7

6. Indirect losses of rangeland degradation include cost of works on their rehabilitation. Full rehabilitation of all degraded rangelands will be possible during a long period of time. During the nearest five years these works will be implemented on the area 1.925 mln hectares. The annual expenses on their rehabilitation total US \$ thou 156,780. Cost of works on rehabilitation of saline soils is given in table 2.

**Cost of Works on Rehabilitation of Degraded Farm Lands in Turkmenistan  
(US \$'000)**

<b>Velaytat</b>	<b>Construction of the horizontal drainage</b>	<b>Leaching of soils</b>	<b>Total</b>
Akhal	2,309.6	16,414.3	18,723.9
Balkan Dashkhovuz	76.9	6,064.7	6,141.6
Lebap	1,809.6	12,080.9	13,890.5
Mary	592.2	2,395.2	2,987.4
	2,306.0	20,678.5	22,984.5
<b>Total</b>	<b>7,094.3</b>	<b>57,633.6</b>	<b>64,727.9</b>

7. Cost of works of forest regeneration is given in table 3 and that of sand salinization is given in table 4. The total economic losses caused by desertification are given in table 3.9.5. One could see that total economic losses from desertification are more than US \$ mln 282 per year. That makes more than 3 % of the national income. Desertification processes in Turkmenistan were especially intensive during the last 10 years. So we can suppose that direct losses caused by desertification totaled in 10 years US \$ 1.1 billion.

**Size and Cost of Works on Forest Re generation in Turkmenistan**

Works	Velayats				Annual	Total expenses US \$
	<i>Akhal</i>	<i>Dashkh ovuz</i>	<i>Lehap</i>	<i>Mary</i>		
1. Forest regeneration in sands, hectares	15,000	16,500	65,000	55,000	31,300	545,400
2. Forest planting in sands, hectares	-	2,000	10,000	1,500	2,700	162,000
3. Seeding of pistacia	1,500	-	-	1,500	800	36,000
4. Planting of juniperous trees hectares	750	-	-	-	170	25,500
<b>Total expenses</b>						<b>768,900</b>

Table 4

**Size and Cost of Works on Sand Stabilization and Afforestation in Turkmenistan**

Works	Velayats				Annual	Total expenses US \$
	Akhal	Dashkhovuz	Lebap	Mary		
1. Protective belts along main roads, hectares	375	200	-	100	285	1,923,750
2. Protective belts along railways, hectares	-	2,000	900	200	920	6,210,000
3. Sand stabilization on gas fields and along pipe lines, hectares	-	560	1,000	800	572	4,633,200
4. Salinization of oasis bordering sands, hectares	500	200	-	-	140	945,000
<b>Total expenses</b>						<b>11,724,750</b>

**Economic Losses Caused by Desertification**  
**S \$'000**

Denomination	Losses US \$'000
Direct losses (income foregone)	
A. Losses of animal production	160.6
B. Losses of agricultural production	112,713.7
<i>Total A + B</i>	112,874.3
Indirect losses	156,780.0
C. Expenses on rehabilitation of degraded rangelands	64,727.9
D. Expenses on rehabilitation of degraded farm lands	768.9
E. Expenses on forest regeneration	11,724.7
F. Expenses on sand stabilization and afforestation	
<i>Total C + D + E + F</i>	234,001.5
<b>Total A+B+C+D+E+F</b>	<b>346,875.8</b>

Source: Turkmenistan: Country Situation Paper

## **Turkmenistan: IACD**

### **National & Local Government, Civil Society and the Private Sector**

#### **Governance**

1. Turkmenistan is administered on the basis of President's rule and the political system is characterised by a strong presidency. The President is Head of State, chief executive and the executor of the national constitution. He is also the Prime Minister and chairs the only political party. As noted, Saparmurat Niyazov was elected the first President of Turkmen SSR before independence in 1990. After the adoption of the new constitution in May 1992, President Niyazov was re-elected in the second presidential election in June of that year. In 1994 a national referendum extended President Niyazov's term for a further 5 years and on the Khalk Maslakhaty (see below) removed all limits on his term of office making him President for life.

- (i) The Khalk Maslakhaty (People's Council) is the supreme legislative body. It is the only body empowered to make changes to the constitution - through nation-wide referenda - but its main function is to approve the overall direction of government policy. The President is Chairman of the Khalk Maslakhaty and other members include the parliamentary deputies, one elected deputy from each etrap, the chairman of the supreme court, government ministers, judges and Governors.
- (ii) The unicameral Mejlis (parliament) is the second legislative body. The Mejlis has 50 members who are directly elected by majority vote through constituencies. The term of office is five years.

#### **Local Government**

- (iii) The executive power in each Velayat and Etrap belongs to the Khakim who is the representative of the government and accountable to both government and President. Responsibilities for these levels of local government include implementing certain aspects of the privatisation programme, reform of agricultural enterprises, providing social protection to the people and supervising educational institutions, health services and social security systems.
- (iv) While the Khakims are local representatives of the government, in towns, settlements and villages a different system exists. In 1993 Gengeshy – or Municipal councils – were established. This system of “self-governance” is based on traditional Turkmen structures such as village assemblies, councils of elders and women's councils. The Gengeshy were given full power over their territory including, among others, control over the local budget, choice of direction in terms of social, economic and cultural affairs, decisions concerning local referenda and the regulation of land.
- (v) Members of the Gengeshy are elected by direct and secret ballot by people within the territory and are accountable to their electorate. The Gengeshy also nominates and dismisses archins – the bodies of executive power in the area – approve budgets and has the power to rescind archin decisions. In 1995, the Law on Khakims expressly forbids the khakims to interfere in issues left exclusively to the Gengeshy.

2. According to the Constitution, local executive power is exercised by the local executive (*hyakim*) which oversees the provinces (*velayats*), the rural districts (*etraps*), and the urban districts (*shakher*). The *hyakims* are appointed by and represent the President. There are regional budgets at the velayat, etrap, and city level. The state budget allocates funding to *hyakims*, which are assigned substantial expenditure responsibilities in the areas of primary and secondary education, basic health care facilities, and local law enforcement functions. The *hyakims* do not have the power to levy their own revenues. No clear legal distinction is made between the functions that are performed by the deconcentrated and/or that of the decentralized apparatus. The distribution of functions between the velayats and the urban and rural districts is also not clearly stipulated. So far, the Government has not been able to set up representative institutions (such as regional parliaments for instance) to ensure that the local executives at these levels are accountable to their constituencies.

### **Civil Society and the Private Sector**

- (vi) There is a small but emerging civil society in Turkmenistan. According to the Constitutions and the 1991 Law On Public Associations in Turkmenistan, civic organisations are to protect the civil, political, economic, social and cultural rights and freedoms, to encourage people's participation in state governance and to satisfy their professional interests and other needs. Under the legal framework it is mandatory for all civic organisation to be registered but due to the slow and cumbersome process many operate under the umbrella of the Youth and Women's Unions and others have their registration pending with the Ministry of Justice. While there are many fledgling civic organisations (recent estimates put the number at between 50 and over 300) there are also experienced organisations that have their roots in the soviet period but have extensive infrastructure and government support as well as branches in each velayat and etrap. The Women's Union and Youth Organisation of Turkmenistan are examples of such civic organisations.
- (vii) Although the basic legislation for private sector development is in place and most prices have been liberalised apart from some commodities and public utilities, economic activity continues to be dominated by the state. The state sector represents 60% of GDP and employs 45% of the workforce. The issues of private sector development and the privatisation process are discussed later in this section.

### **Human Rights**

- (viii) The constitutional law on the Permanent Neutrality of Turkmenistan (December 27 1995) states that "Turkmenistan recognises and respects the fundamental democratic rights and freedoms, accepted by the world community and fixed in international law. Turkmenistan provides political, economic, legal and other guarantees for their implementation".
- (ix) In December 1995 Turkmenistan also adopted the declaration "On International Obligations of a Neutral Turkmenistan in the Sphere of Human Rights". It confirmed Turkmenistan's adherence to the aims and principles of the Universal Declaration on Human Rights. It states the fact that Turkmenistan ensures human rights and freedoms provided by the Constitution as well as standards of international law to all people irrespective of race, sex, language, religion, political and other beliefs, nationality and social status.



- (x) In 1996 the Turkmen National Institute for Democracy and Human Rights was established under the President. The Institute is responsible for developing the strategy of administrative decentralisation and strengthening the activities of local administrations. In addition, it acts as an ombudsman and will consider citizens appeals against officials as well as work to restore rights to individuals where they have been violated.

Source: United Nations System: Common Country Assessment (2000).

## **Turkmenistan-IACD**

### **Turkmenistan: Ongoing Activities and Programs Aimed at Combating Desertification**

Realization of the National Actions Program to Combat Desertification in Turkmenistan:

#### **The UNDP/UNSO project**

In accordance with the Memorandum about mutual understanding between the Government of Turkmenistan and UNDP/UNSO Program there implements the project “Realization of NAPCD”. It was envisaged to implement the following measures:

1. To expand population’s information about CCD. It was prepared and published popular fracture about CCD in Turkmenistan. There were published placard and calendars on CCD and prepared a booklet of the International biosphere sand-desert reserve (Repetek) in Turkmenistan.
2. For the strengthening of local out workshops in Sakarchaga etrap of Mary velayat in the Bakhardok settlement with local population, woman, schoolchildren. There was a competition of schoolchildren of Ashkhabad on environment protection and problems it combat desertification. In mountain village Nokhur, Bakharden etrap and Tahtinsky etrap of Dashoduz velayat the measures on the project were conducted together with workshops on the GTZ project on the management of natural resources and sustainable development of private agriculture.
3. One of the most important pilot project of the NAPSD is stabilization of moving sands along the highway Ashkhabad – Dashoguz in the area of Bakhardok settlement. Stabilization of sands was conducted on 5 ha by means of installation of reed shields and phytomelioration by cultivation of shrubbery of desert plants.

Local population and schoolchildren took part in conducting such works. There were workshops on combating desertification. For the increasing of activity and awareness of local population desertification problems and for rewarding winners of ecological competitions with prize there were prepared SOO sports shirts with the emblem of NAPCD in Turkmenistan. When implementing the measures there were also stabilized 2.2 ha of moving sands on one of plots of “Green Zone” around Ashgabat making and mounting special placards with slogans on nature protection and combat desertification. For this plot there were selected special shrubbery halophytes of desert plants which grow without irrigation on salty lands. For mechanical protection of moving sands on the plot there used various methods, with applying various reed shields and without them, with active consultation of the National institute of desert, flora and fauna of Ministry of nature protection of Turkmenistan.

When implementing the pilot project on stabilization of moving sands and installing reed shields, inhabitants of remote desert settlements participated in the work.

4. The second pilot project is mounting solar power installation for water lifting in Central Karakums. For remote desert settlements there were purchased 30 gelio batteries with the capacity of 15-22 watt on the price of 120\$ each of it and the total cost in 3,600\$ in accordance with the tender, declared by UNDP office.

There were elaborated and ordered frame constructions for the creation of 6 gelio power installations, selected remote desert settlements where water-supply is realized, by means of collection of atmospheric precipitations and there live 2-4 families of shepherds who deal with distant cattle-breeding and small oasis agriculture. On August 9, 2000 there was mounted and put into operation one FES-012 gelio instalion. Power supply of such settlements due will allow sustainable development of distant cattle-breeding by means of long-term family leasing and privatization of desert ranges. This will allow to stop population's migration to densely populated oases.

This problem is very important for Turkmenistan because power – gas and water-supply of local population are free of charge. At mass production of helio batteries, with the use of the newest science – consuming technologies, their cost will be cut down. This will allow to use resumed power sources and decrease anthropogenic load on ranges as one of main desertification reason.

The solution of power-supply and other social issues of remote desert settlements will allow to use ranges more effectively.

Later on, it is necessary to continue these works in order to give opportunities for inhabitants to use ranges without damage for ecology and develop sustainable distant cattle-breeding.

### **GTZ/NIDFF/GEOPLAN Project “Community-based resources management”**

#### 1. Introduction to the project

The project “Community based resources management” is a contribution to the realisation of the International Convention to Combat Desertification (CCD) and to the National Action Program to Combat Desertification in Turkmenistan (NAPCD). The project started as a pilot activity within the project “Support of the Desert Institute” in the Erbent region (Central Karakum) in 1998. In April 2000 the project was enlarged on two other pilot areas (see below). The ongoing phase will end in March 2002.

The general objective of the project was formulated as follows: “In view of promoting the implementation of the CCD the population as well as the local decision makers in the pilot areas have improved their self-help potential in a joint learning process of all actors and are empowered to make use of it.”

Participatory planning methods and possibilities of participatory management of natural resources are carried out on a pilot basis in three areas of Turkmenistan. The pilot areas have different social, economic and ecological characteristics: 1) desert area Yerbent, 2) mountain area Nohur and 3) oasis and irrigation area Sakar-Chaga (Mary). Furthermore, environmental education and co-operation with teachers, environmental awareness raising of the public as well as information about the project and information exchange at national and international levels are important project activities.

#### 2. Assessment of the project progress

##### 2.1 Project concept and approach

The approach of the project is people-centred and process-oriented. This implies that natural resource management and related activities are planned and carried out in a participatory manner according to the problems, needs and priorities of the population concerned. The people determine its dynamic.

The project takes into account that a learning process has been initiated, in particular in terms of participation in planning and implementation of activities. It has therefore developed a flexible approach, which is oriented at the progress of this learning process. Progress in this field is therefore considered as being as important as the results of technical measures to combat desertification, since the commitment and participation of the resource users is an inevitable prerequisite for sustainable natural resources management. The flexible and participatory approach oriented at people's needs and problems in the field of natural resources management is certainly one of the main factors for the successful Cupertino with the population concerned and other actors.

After many years of planned economy as well as centralised and high-level decision-making concerning land-use and production targets in Turkmenistan the "bottom-up" approach of the project was an innovation in the country. A remarkable progress concerning local people's motivation to participate in project activities can be observed from the project's beginning up to now.

The project takes into account that the degradation of natural resources has various causes and that combating desertification asks for actions on different levels and in different sectors. Therefore pilot activities do not only include technical measures. Ecological awareness raising and environmental education as well as information exchange and co-operation with others also play important roles.

In detail, test activities are carried out in various sectors: agriculture, forestry, erosion-control, water management, education and income-generation. The activities are mainly based on the results of participatory rural appraisals (PRA) carried out in the villages by the project staff aiming at participatory problem analyses and project planning. Starting point in each pilot area was the co-operation with local schools in the field of environmental education, which also served the project as an "entrance door" to the communities.

The integrated approach of the project takes into consideration important development policy criteria:

Participation of target groups. Population groups in the pilot areas participate actively in planning and implementing test activities. Furthermore, whereas in the beginning only the project supplied people and schools with agricultural inputs (e.g. planting material, seeds, seedlings), this is now more and more being carried out by local people/schools themselves, as they established local nurseries. Some activities initiated by the project developed a self-help character and are carried out without the project's support (for example wool marketing, carpet making, marketing of cheese and agriculture products).

Public participation. Local administration, traditional religious leaders, school directors, teachers and pupils are actively involved in project activities

Poverty orientation. The majority of the families concerned belong to the category of poor households.

Target group and gender differentiation. The different problems and needs of men and women are taken into account during situation-/problem analysis and planning. Representatives of the different village groups take part in planning and decision-making processes.

Sustainability. Several indicators show the sustainability of certain activities: Gardening is highly accepted and meets a high demand. People from nearby villages, which are not directly supported by the project, ask for information in the villages concerned, supply themselves with input and work on their own. Carpet making is carried out by a group of formerly unemployed young women working now independently from the project. They sell their products on the market and thus earn their own income.

Wool marketing between Nohur and Bahardok, initiated by the project, is being carried out on a regular base without the project's support. The project established business contacts between families in Nohur and hotels in Ashgabat. People from Nohur provide hotels with fruits, vegetables and local milk products. Now the families are working with hotel managers without additional support from the project. Furthermore, schools have integrated certain activities that were initiated by the project into their curriculum, e.g., gardening, agricultural topics, weaving.

## 2.2 Resource management and related activities, extension approaches

The main resource management and related activities in the three pilot areas concern

- in the desert area Yerbent: gardening, sand dune stabilisation, re-establishment of a traditional water harvesting system (in takys), establishment of nurseries for trees, desert plants and vegetable seeds, establishment of school gardens in different villages, support of income-generating (carpeting and needlework);
- in the mountain area Nohur: range land improvement, reforestation against soil erosion, establishment of tree nurseries, support of income-generating and marketing, introduction of new irrigation techniques, establishment of school gardens in different villages;
- in the irrigation/oasis area Sakar-Chaga: gardening, establishment of tree nurseries, development of wastelands, establishment of shelter belts around fields, establishment of school gardens in different villages.

Awareness-raising activities and environmental education in schools, carried out in each pilot area, will be described in paragraph 2.4.

The project's general extension approach is mainly directed at people working individually on a family basis. The project just started in the last few months to work with self-help groups like, e.g.: a women's carpet-making group and self-help groups of gardeners in Yerbent or a group of families which established a tree nursery in a private melek in Kone-Gummez village in Nohur pilot area. Other self-help organisations or privately organised interest groups do not yet exist.

As a consequence of the project's positive experience and encouraging results, a number of neighbouring villages are motivated to cooperate with the project. In order to realise project activities on a broader scale or to start new activities, the project uses diverse methods, for example: expanding activities in one pilot area from the "core village" to neighbouring villages following their request (in Yerbent and Nohur), inviting representatives of different pilot areas to seminars with the local population, in order to demonstrate and discuss new activities with them once a year in each pilot area (all in all three seminars per year).

### 2.3.1 Activities carried out in the pilot area of Yerbent

Gardening in the desert area of Yerbent became an activity which is highly demanded by the local people and which could be extended from 7 families in one village in 1999 to more than 70 families in several villages within one year. In order to cope with this demand and assure technical assistance, the project carried out seminars about vegetable growing which were attended by a great number of people and established a local consulting system which is working efficiently. The local expert and 7 families give individual technical advice to other people interested in gardening and provide them with seeds. They work on demand and on a voluntary basis.

Families produce vegetables mainly in their garden near the house (average size: 1 600 m<sup>2</sup>) and for home consumption. Many women participate in vegetable gardening and grow a number of different varieties now to complete the family's daily diet.

Only a few families stabilised sand dunes around their houses and planted, if irrigation is possible, fruit and fodder trees there. According to the project team the population generally cannot be motivated easily in this regard, even if their houses are threatened by sand, because it demands a great deal of work and success cannot be seen immediately.

After a request of a group of villagers the project supported the joint re-establishment of a traditional water harvesting system (in takyrs) in Mamet-Yar. Two waterpoints were cleaned and fenced and can be used again now by the population.

In the beginning of its activities the project provided the local school in Yerbent with equipment and material for carpet-making and other weaving products. Now carpet-making does not demand the project's assistance any more. The school included it into its curriculum and provides now pupils with training and material. Whereas pupils use the equipment in the morning, it is used by a group of formerly unemployed young women in the afternoon. Finding possibilities to sell their products they are now able to earn their own income. In the end of 2001 the local administration provided about 1 ha of irrigated land close to Chalysh village to establish a local tree nursery. The people from Chalysh, who are dealing with gardening started with planting sticks of different fruit tree species and sowing 5 kg of saksaul seeds, supported by National Consultants.

### 2.3.2 Activities carried out in the pilot area of Nohur

Lack of water, degradation of rangeland and agricultural land as well as increasing soil erosion were identified as being the main problems in this mountainous pilot area.

The first activity of the project was the support in repairing some of the pumps which are pumping ground water to the main water basin from where the water is distributed to different parts of the Garavul village to irrigate the gardens and meleks of the families.

As another activity, the village population selected, ploughed and fenced a plot of 3 ha of community area with the goal of improving rangeland. Shepherds, representatives of several villages, pupils and specialists from the NIDFF collected seeds of high quality desert plants and sew them on the selected plot. The pasture will be fenced for 3 to 4 years and then be used by the local population and shepherds. However, the future management of the rangeland has not been organised yet and remains to be discussed in detail.

Soil erosion being one of the most important problems in this area, the local population were supported in carrying out several anti-erosive methods. In two areas (3 ha community area as a.m. and 2 ha school experimental area) they planted local trees as well as desert plants (mainly *Haloxylon*, *Pistacia*, *Juniperus*, *Amigdalus*, *Biota*, *Cupressa*, *Pinus*, *Amygdalus*). Furthermore, a number of families started planting trees around their gardens as shelterbelts and building material supply, school gardens were established and private tree nurseries were set up (in Garavul as well as in neighbouring village Kone-Gummez).

After participating in a seminar organised by the project, representatives of Kone-Gummez village demanded support for reforestation from the project. After jointly planting *Juniperus* and others species, people chose one person to protect the newly planted trees. He works on a voluntary basis; his task became "official" as the village provided him with an identification card as a "protector of trees".

This is an indicator that people consider reforestation as being highly important for their village and have developed a sense of ownership.

In April and May 2001 a group of families, interested in flower growing to create additional income, asked for support. They were trained in different flower growing methods and provided with seeds. As one additional result of this activity the involved families in Garavul village started to plant flowers on a small hill situated in the middle of Garavul. Their objective is to establish a public botanical garden.

### 2.3.3 Activities carried out in the pilot area of Sakar-Chaga

The project staff successfully initiated gardening by carrying out a technical seminar, which was linked to an information exchange with representatives from the two other pilot areas. During the seminar a technical leaflets about gardening as well as small packets were distributed to participants containing seeds for a start. All 15 participants carried out gardening activities after the seminar and are growing nearly 10 different varieties of vegetables now. One family built a greenhouse with technical and financial support of the project. It is the first greenhouse for vegetable growing in the region and might be a pilot activity, which can be enlarged in a second project phase.

Additionally, they started to plant salt resistant forage crops. Additional 15 families are preparing their gardens already eager to work with the project. Following their request another seminar will be carried out. However, there is a certain lack of water for activities in private gardens, as water is used principally for the irrigation of state controlled production of cotton and wheat.

The establishment of tree nurseries in schools is part of environmental education. The schools are providing other schools as well as families with seedlings. In the future the supply can be organised independently from the project or forest station.

Furthermore, the project successfully supported some farmers in this pilot area to rent "wasteland" from the local government and to improve it. Documents had to be prepared and be legalised in order to rent irrigation land, which is out of use for more than 20 years due to high soil salinization. As a prerequisite for rent farmers are demanded to improve the rented land and use it for agricultural purposes. The project supported them by giving technical advice on melioration of the salted soil and provided a part of the input required as a start.

The project support farmers in planting tree lines along their fields near the main road from Mary to Sakar-Chaga. The project trained the farmers to prepare the salted soils and provided them with seedlings and sticks of salt resistant trees.

The project also supported two schools in establishing meteorological stations in their school yard

## 2.4 Environmental awareness-raising and education

Since the beginning of the project an important focus of the activities has been environmental awareness-raising and ecological education. The project's work in this field is being judged as particularly valuable and successful, not only by school directors and teachers, but also by the population concerned, religious leaders and the local administration. As a consequence of the positive results, the Ministry of Education integrated Environmental Education into the curriculum of schools.

In all pilot areas several seminars for teachers and school directors in environmental subjects were hold.

On the village level several seminars were organised and carried out which concerned environmental topics like desertification, nature and ecology of mountain areas, nature protection, environment-related national and international programmes.

Environmental education in schools links lessons in the classroom to pupils' practical work, like establishing school gardens and tree nurseries, collecting seeds and planting trees together with villagers. Pupils' interest in environmental subjects is easily raised by relevant competitions, the winners being rewarded by the project and the local administration.

Co-operation with non-governmental environmental organisations in Sakar-Chaga pilot areas turned out to be a promising approach in this field also.

## 2.5 Information, information exchange, co-operation with others

One important concern of the project is the information exchange not only between the three pilot areas, but also between the project and other organisations at the national, sub-regional, regional and international levels.

For specific activities, for example gardening and environmental education, information exchange and co-operation were organised:

- within each pilot area,
- among the three pilot areas,
- with other projects and organisations, for example the Turkmen-German project "Support of private Agriculture" in Taghta and various national NGOs, like e.g.: "Red Book", "Chynar" or Turkmen Nature Protection Society.

A high number of local people participated in these information exchanges and many of them implemented the activities discussed and demonstrated.

An internal evaluation was organised in July 2001, in which the project staff and 22 people from the pilot areas participated. It revealed positive and negative aspects of the project (see Annex 1).

Information about project activities, information exchange and co-operation with other partners turned out to be important issues to make the project's approach and promising results known to many families in the project areas, organisations, projects, decision-makers, etc. at different levels. As a consequence, its experience will increasingly be used in future, in particular for designing and implementing pilot projects in other Central Asian countries (in co-operation with the GTZ-CCD-Project in Bonn).

On national, sub-regional and international levels the project informed and co-operated with the following organisations:

National level: National and international organisations and projects dealing with resources management in Turkmenistan (e.g., Ministry of Nature Protection, UNDP, TACIS, British company Environmental Resources Management/ERM, etc.) were informed about project activities. In February 2001 a meeting with national NGOs, representatives of two embassies and the World Bank in Turkmenistan was organised. Topic: "Development of co-operation in natural resources management". In the frame of the Caspian Ecological Programme (CEP) the project staff actively participated in supporting



PRA-training and supervision in Turkmenistan. PRA-training material was set up and made available to workshop participants from the countries concerned by CEP.

In co-operation with the project “Support of private agriculture in Tagta” people from Nohur carried out a practical seminar to introduce the people in Tagta into cheese making.

As a National CCD Focal Point, the Scientific Advisor of Nohur pilot area has presented the principals, the objective and the conception of the project during the seminars on ecological education and empowerment of local initiatives to realise the implementation of the CCD, hold in Balkan velayat.

Furthermore, the project staff and local experts wrote articles about the project’s approach and activities published in national as well as local newspapers and finished the project’s homepage. The project is looking for a new server where it can be placed.

Sub-regional level: Project representatives participated in the 2<sup>nd</sup> meeting of the “Working Group of National Focal Points on the Sub-Regional Action Programme to Combat Desertification (SRAP-CD) in the Aral Sea Basin” in Almaty, April 2001. Furthermore they participated in a training entitled “Strategic development and project planning for integrated resources management” in Uzbekistan, July/August 2001 (DSE). The project staff prepared a co-operation in the field of rangeland improvement with the UNDP/UNSO project “Management of pasture ecosystems in the Aral Sea Basin”.

Regional level: The project co-ordinator is involved in the preparation of the Caspian Environmental Programme, including supervising a PRA in Iran and Azerbaijan.

International level: The national CCD focal point, who is at the same time the scientific advisor in the Nohur pilot area, presented the project during the CCD’s 4<sup>th</sup> Conference of the Parties in Bonn, Germany, December 2000, at the 3<sup>rd</sup> Asian African Forum on Combating Desertification and Mitigating Drought in Ulan Bator, Mongolia, June 2001 and at the Forum of the implementation of the UNCCD preparatory to the World Summit on Sustainable Development (WSSD) in Praia – Cape Verde, March 5-8, 2002.

In the end of 2001 the co-ordinator of the project participated in international training course “Methods and Techniques of Development, Planning and Management” in Germany (hold by the DSE in Zschortau and Feldafing).

## 2.6 Supervision of students and contacts with universities

Studies of one PHD Turkmen (doctorand, Universities of Ashgabat and Cologne, DAAD sandwich program) and three German students (doctorand, graduants) were supervised by the scientific advisors. Furthermore, a cooperation with the University of Marburg (Professor Opp) was initiated. Also the project established the contact between the Institute of Geography, University of Heidelberg. Professor Hans Gebhardt (Heidelberg) has been in Ashgabat as DAAD short-term lecturer in autumn 2000 to prepare a DAAD supported co-operation between the two institutions.

## 2.7 Support to the Ministry of Nature Protection

On request of the national Ministry of Nature Protection the project staff provided photos and video material for the preparation of videos and brochures about nature reserves.

Remarks about the next project phase { GTZ/NIDFF/GEOPLAN Project “Community-based resources management” }

In all probability, the expansion of the project in the next phase will be funded jointly by the GTZ-CCD-Project in Bonn and other donors, very likely the World Bank. This will allow the project to expand its scope and carry out activities on a broader scale.

### Caspian Regional Thematic Center on “Combating Desertification”

#### 3.1 General Information

Natural deserts mainly on the eastern side of the Sea determine the Caspian Environment. Due to some human activities a further degradation of vegetation and soils is ongoing.

The Caspian littoral countries therefore at the 1998 Ramsar Conference as the starting point of the Caspian Environment Programme decided to establish a Caspian Centre for Combating Desertification in Ashgabat (Turkmenistan). The Caspian Centre for Combating Desertification started the work in June 1998.

The objectives of the Centre are to prepare outcomes, recommendations and further technical assistance for the Caspian Strategic Environmental Action Plan in terms of desertification. This includes the following works in all five littoral countries

- Assessment and mapping of desertification phenomena
- Research of Desertification Hot Spot areas
- Causal analysis of current desertification
- Further desertification and risk forecast
- Socio-economic implications
- Institutional, legal, technical needs.
- Development of Combating Desertification Measures

An overall goal of the Centre is to improve the capacity building of human resources in the field of desertification. Desertification in the past has not been an important environmental threat. Thus the development of national teams dealing with modern comprehensive desertification assessment is the main issue.

Since 1998 a desertification group around the Caspian Sea is functioning. This group is lead by the Caspian Centre for Combating Desertification. Our partners are scientists and consultants working at the

- Institute Geography Baku (Azerbaijan)
- Institute Geography Almaty (Kazakhstan)
- Arid Land Centre Elista (Kalmykhia, Russia)
- Range and Forest Organisation Tehran (Islamic Republic of Iran)

Hosting institution is the National Institute for Desert, Flora and Fauna at the Ministry for Nature Protection Turkmenistan in Ashgabat.

Source: Turkmenistan Country Situation Paper, by Dr. M. Nepesov, ADB Domestic Consultant, Section 4.

## Turkmenistan- IACD

### Turkmenistan: Priority Project Proposals (Annex to Country Situation Paper) Suggested Project Brief - 1

Main Particulars	Brief Description
<b>A: Key Data</b>	
Country	Turkmenistan
Project Proposal Number	NAPCD 1
Project Name	Protection of the most important economic structures from sand drifts in Karakum Desert
Project Areas (Oblasts, Rayon's)	Lebap and Dashaguz Velayats, Turkmenistan
Sector/Sub-sector Project Implementation Agency	National Institute of Deserts, Flora and Fauna of the Ministry of Nature Protection
Contact Person (s) in the Agency responsible for project development.	Focal Point of UNCCD in Turkmenistan
Type of Project: Investment project/ Technical assistance (TA)	TA
<b>B: Description</b>	
Brief project description	On the base of field survey and experience of the National Institute of Deserts it is planned to stabilize drifting sand around roads and technical constructions in the north-east region of Turkmenistan using mechanical stabilization and phyto-reclamation.
Project objectives & rationale	<ol style="list-style-type: none"> <li>1. Stabilize moving sand s around the roads, gas-mains and sites with technical equipment.</li> <li>2. Set up mechanical barriers and protective shrub belt in affected areas</li> </ol>
Key project activities	<ol style="list-style-type: none"> <li>1. Field survey and assessment of wind erosion</li> <li>2. Mechanical stabilization of drifting sands</li> <li>3. Construction of mechanical barriers</li> <li>4. Seeding and planting sand binding plants</li> </ol>
Tentative total project costs	1,557,450 USD
Type of external donor financing requested: (a) TA –grant funds (b) Investment Project financing (concessional loans)	TA
Current Status of Project Preparation: (a) only a project idea/concept (b) at identification stage (c) Under preparation	Only a project
Has the project proposal been submitted to any donor agency. If so give details	UNEP in 1996
Has the project received any budgetary support/or its clearance status	As a pilot project in Central Karakum desert with financial support of GTZ
Type of support needed to complete project preparation	Finance
Project activities which offer scope for regional cooperation.	Project result will allow using its experience in other Central Asia countries affected by drifting sand problem.
How the project would address global/trans-boundary land degradation issues to get GEF support.	The project activities will be carried out in the boundary regions with Uzbekistan which is also affected by drifting sands. Problem of drifting sand is a global problem and implementation of the project will help to contribute to enriching global experience in problem of sand reclamation
How is the project supportive of CCD/NAP objectives	Drifting sand is a consequences of land degradation and is a first objective to tackle by UNCCD and the NAP of Turkmenistan

**Suggested Project Brief -2**

<b>Main Particulars</b>	<b>Brief Description</b>
<b>A: Key Data</b>	
Country	Turkmenistan
Project Proposal Number	NAPCD 2
Project Name	Construction and testing a solar generator for pumping out and refreshing water in Central Karakum
Project Areas (Oblasts, Rayons)	Locality Karrykul, Bakharden etrap, Akhal velayat, Turkmenistan
Sector/Sub-sector	
Project Implementation Agency	National Institute of Deserts, Flora and Fauna of the Ministry of Nature Protection
Contact Person (s) in the Agency responsible for project development.	Focal Point CCD in Turkmenistan
Type of Project: Investment project/ Technical assistance (TA)	TA
<b>B: Description</b>	
Brief project description	To construct and test a solar generator for pumping out and refreshing water in Central Karakum desert in order to support livestock breeding farms with drinking water for human and animals and doing this to contribute to the even use of rangelands and reduce overgrazing and improve livelihood of local people .
Project objectives & rationale	<ol style="list-style-type: none"> <li>1. To test possibility of a solar generator for pumping out and refreshing water in the conditions of Central Karakum</li> <li>2. To support group of shepherds with potable water</li> <li>3. To reduce overgrazing in the research area</li> <li>4. To improve the livelihood of local shepherds</li> </ol>
Key project activities	<ol style="list-style-type: none"> <li>1. To construct solar generator and test it</li> <li>2. To provide with the potable water a team of shepherds (20-30 persons) and watering a flock of sheep (3,000 heads)</li> </ol>
Tentative total project costs Type of external donor financing requested: (a) TA –grant funds (b) Investment Project financing (concessional loans)	260, 400 USD TA
Current Status of Project Preparation: (d) only a project idea/concept (e) at identification stage (f) Under preparation	Only a project
Has the project proposal been submitted to any donor agency. If so give details	UNEP in 1996
Has the project received any budgetary support/ or its clearance status Type of support needed to complete project preparation	Pilot project is realized in the framework of UNDP/UNSO project in five settlements of Turkmenistan  finance
Project activities which offer scope for regional cooperation.	Project contributes to overall Sub-regional Action Program to Combat Desertification in Central Asia as the results of the project are to be used in the neighboring countries
How the project would address global/ trans-boundary land degradation issues to get GEF support.	The experience obtained in the course of implementation of the project will be resulted in preparation of maps of installation of solar generator in Turkmenistan, publication in Turkmen, Russian as well as in English, conducting training courses for local people, as well as at the national and regional levels.
How is the project supportive of CCD/ NAP objectives	The overall objectives of projects to reduce land degradation and improve livelihood of local people are totally in line with the objectives set in the UNCCD and the NAP

## Suggested Project Brief - 3

Main Particulars	Brief Description
<b>A: Key Data</b>	
Country	Turkmenistan
Project Proposal Number	NAPCD-3
Project Name	Melioration of saline soils in Tagty Etrap, Dashoguz Velayat, Turkmenisyan
Project Areas (Oblasts, Rayons)	Tagty Etrap, Dashaguz Velayt, Turkmenistan.
Sector/Sub-sector	
Project Implementation Agency	National Institute of Deserts, Flora and Fauna of the Ministry of Nature Protection
Contact Person (s) in the Agency responsible for project development.	Focal Point UNCC in Turkmenistan
Type of Project: Investment project/Technical assistance (TA)	TA
<b>B: Description</b>	
Brief project description	The main point of the project is rehabilitation of soil fertility in root layer. This will be achieved by conducting several measures on soil melioration and agrotechnique. Hydrological study will be also carried out.
Project objectives & rationale	<ol style="list-style-type: none"> <li>1. Reconstruct old drainage network and irrigation canals</li> <li>2. Improve soil condition on 50,000 hecatres in Tagty Etrap.</li> <li>3. To raise agricultural crops by 25%</li> </ol>
Key project activities	<ol style="list-style-type: none"> <li>1. Hydrological and soil survey</li> <li>2. Compilation of map of soil salinization</li> <li>3. Construction of new and reconstruction of old drainage network.</li> </ol>
Tentative total project costs	11,745,300 USD
Type of external donor financing requested: (a) TA –grant funds (b) Investment Project financing (concessional loans)	TA
Current Status of Project Preparation: (g) only a project idea/concept (h) at identification stage (i) Under preparation	Only a project
Has the project proposal been submitted to any donor agency. If so give details	UNEP in 1996
Has the project received any budgetary support/ or its clearance status	As a pilot project “Support to private agriculture” in Tagta etrap with financial support of GTZ
Type of support needed to complete project preparation	Financial
Project activities which offer scope for regional cooperation.	Soil salinization is a problem affecting many arid countries in the world and Central Asian countries as well. Dashaguz Velayat is in region of Aral Sea disaster and project’s activities will contribute to the regional development and environmental projects.
How the project would address global/ trans-boundary land degradation issues to get GEF support.	Dashoguz Velayat where the project’s activities are planned is a boundary region with Uzbekistan and falls into the area of Aral sea crisis. The experience of Uzbek and Turkmen scientists could be helpful for both of the parties.
How is the project supportive of CCD/ NAP objectives	Soil salinization is one of the severe type of soil degradation due to irrational agricultural activities. UNCCD pays great attention to improvement of soil fertility by introduction of modern and traditional technologies. The NAP of Turkmenistan addresses the problem of soil salinization as a priority problem of land degradation which has both negative ecological and economic effects in Turkmenistan.

**Note:** The three project briefs were considered by the working group of the Commission of UN conventions under the Cabinet of Ministers, with the participation of Mr. Durikov, National Coordinator UNCCD in the meeting, and were recommended for realization as a part of the NAP of Turkmenistan.

## Turkmenistan: IADC

### GEF Project Portfolio in Turkmenistan

**Country 'Turkmenistan' Period From: 1994 To: 2002**

Single Country Projects - 5 Projects								
Country	Project Name	Region	Focal Area	Agency	Project Type	GEF Grant (US\$M)	Project Stage	Details & Documents
Turkmenistan	Biodiversity Strategy, Action Plan and National Report with Clearing House Mechanism	ECA	Biodiversity	UNDP	Enabling Activity	0.304	CEO Approved	
Turkmenistan	Enabling Activities for the Preparation of Initial Communication Related to the UNFCCC	ECA	Climate Change	UNEP	Enabling Activity	0.350	CEO Approved	
Turkmenistan	Expedited Financing Climate Change Enabling Activity (Phase II)	ECA	Climate Change	UNEP	Enabling Activity	0.100	CEO Approved	
Turkmenistan	Improving the Energy Efficiency of the Heat and Hot Water Supply	ECA	Climate Change	UNDP	Medium Size Project	0.750	CEO Approved	
Turkmenistan	Programme for Phasing Out Ozone Depleting Substances	ECA	Ozone Depletion	UNDP	Medium Size Project	0.515	CEO Approved	
<b>Subtotals for the Result</b>						<b>2.019</b>	<b>5 Projects</b>	
Regional and Global Projects - 3 Projects								
Country	Project Name	Region	Focal Area	Agency	Project Type	GEF Grant (US\$M)	Project Stage	Details & Documents
Regional	Addressing Transboundary Environmental Issues in the Caspian Environment Programme	REG	International Waters	UNDP	Full Size Project	8.341	CEO Endorsed	
Regional	Promoting Compliance with the Trade and Licensing Provision of the Montreal Protocol in Countries with Economies in Transition (CEITs)	ECA	Ozone Depletion	UNEP	Medium Size Project	0.694	CEO Approved	
Regional	Water and Environmental Management in the Aral Sea Basin	ECA	International Waters	IBRD	Full Size Project	12.025	CEO Endorsed	
<b>Subtotals for the Result</b>						<b>21.060</b>	<b>3 Projects</b>	

## TURKMENISTAN: IACD

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