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Water Supply and Sanitation in Central and East European Countries, New Independent States and Mongolia

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AUTHORS: Jutta Mayer

Albert Schwingshandl

Hélmut Weidel

Manfred Clara

Andreas Knapp

LIBRARY IRC
PO BOX 330 2500 AD THE HAGUE
TEL: 020 689 80
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part I

PROJECT SUMMARY



1. PROJECT DESCRIPTION

1.1. Project history, Counterparts

PROJECT HISTORY At the Rabat meeting, WSSCC suggested as important follow-up initiative to take measures in order to involve sector professionals of Central East European Countries (CEEC), New Independent States (NIS), and Mongolia in the WSSCC network and to integrate those countries' needs into its programme of action. The development and cooperation association Mountain Unlimited, an Austrian NGO, carried out the project as executive agency from July to October 1995. The 1995 report did not cover all concerned countries, therefore a follow-up inquiry was done from December 1996 to March 1997.

DONOR The Swiss Government served as project donor.

1.2. The project's objectives

TARGET COUNTRIES The target countries of the implemented project comprise Albania, Bosnia-Herzegovina, Macedonia, Slovenia, Yugoslavija, Kazakhstan, Tadjikistan, Turkmenistan and Uzbekistan.

MAIN OBJECTIVES The main objectives were

- to give an overview on the status of the WATSAN sector in the respective area
- to identify the counterparts in the responsible State agencies and sector institutions of the target countries in view of future cooperation
- to learn about the ongoing national sector activities, defined priorities, and the major sectorial problems
- to investigate current or planned sector-relevant activities set up in the resp. areas by external supporting agencies and multinational, interministerial programmes
- to provide for decision-making on the follow-up activities to be performed by WSSCC



1.3. Methods

Establishing contacts

CONTACTS
ESTABLISHED

The initial step was to identify and inquire about counterparts in the target countries and officials of external support agencies involved in the WATSAN sector in the countries

SOURCES OF
CONTACTS

The following agencies were able to supply us with contacts respectively information on the sector international NGOs and international organisations (WHO, IRC, World Bank, EBRD, Danube Environmental Programme, ÖGUT-Ostinfostelle, IWSA, UNICEF), Austrian trade commissions, target-country embassies in Austria and the programme coordination units.

Information inquiry

In this initial phase of cooperation between WSSCC and sector professionals in the target countries, gathering the following information was deemed effective:

STATUS REPORTS

Available national status reports

MEETINGS

Meetings held in the past or planned for the near future, involving sector professionals of CEEC, NIS and Mongolia

Communication

About 80 Letters of Inquiry were dispatched.

Country Issue Papers (CIPs) were prepared by extracting the most important figures and information from the supplied material. The sources of information included:

- Assessment studies and workshops reports within the Danube Environmental Programme
- Various reports, e.g those of target-country Ministries and State agencies, annual reports of cooperation programmes, such as the Aral Sea Basin Program
- Personal communications by national officials of State agencies of the target countries and of external support-agency representatives
- Lectures of previous symposia or meetings; summaries, extracts from publications



1.4. Problems encountered

MEANS OF COMMUNICATION

This issue proved to be the most severely restraining factor in the development and outcome of the project. Unfortunately, appropriate communication seemed least possible with the Central Asian countries.

This entailed, for instance, that we were forced to send our faxes to the mentioned countries by mail.

The highly arduous conditions of telephone or facsimile communication together with habitual delays in the mailing service certainly have to be taken into account when drafting a project schedule.

WHO IS WHO

For some countries, the state administrative bodies playing the key roles in the sector were not easily identified due to recent reorganisation of the sector. Tracing the most up-to-date telecommunication connections or coordinates caused a considerable loss of time in some instances

LANGUAGE

English or French are not commonly spoken, i.e. in the Central Asian countries. This affected

1. the rate of responsive information from these countries
2. the opportunity for some interested professionals to attend the Forum

COMPREHENSIVENESS OF THE TASK

As the project aimed at investigating the WATSAN status in an extensive area, the results can in no way claim to constitute a complete and actual survey of the sector. From the individual feedback and the number of responses, we may conclude that the performance capacity of the contacted agency could not cope with such a comprehensive inquiry.



COMMENT ON THE
RESULTS COMPILED IN
THE COUNTRY ISSUE
PAPERS

As far as the depth in focus of the work carried out is concerned, the elaborated country reports have to be seen as

- Introductory papers giving a short, concise view on a country and its WATSAN
- Discussion papers summarising the essential information on sectorial performance, and it is in the authors' own interest to incorporate additional and reviewing information as well as up-dated figures on a regular basis.

COMPARABILITY OF
DATA

The data and information obtained cannot be fully compared due to the following reasons:

- Topicality: part of them are not up to date, although some only date back to recent years
- Differences in perspective, especially with regard to the formulation of priorities and major problems, varying between State agencies, research institutions and external agencies.

2. RESULTS

2.1. General

The information obtained has enabled us to elaborate Country Issue Papers for 4 out of 10 countries:

COUNTRIES
COVERED

Albania, Yugoslavia, Turkmenistan. The informations about Macedonia apply to sector specific investments of the state between 1997 and 1999. General sector informations were not available.

STANDARDISED
FORMAT

A standardised format was adopted for the CIPs along the following lines:

- General information on the country
- Water Resources
- Situation in the Water Supply and Sanitation Sector
 - Institutional and legal framework
 - Present status of drinking water supply
 - Present status of sewerage
- Main Problems in the Sector
 - Institutional and Technical Issues
 - Management and Financial Issues
- International Cooperation



2.2 Information on existing status reports

REPORTS EXISTING The information gathered from the responses of contacted agencies indicated that there are numerous reports which were prepared either by an external agency (e.g. WHO, World Bank, UNDP, UNDP/World Bank Water and Sanitation Programme UNICEF, IRC) or by an individual State agency associated with the national WATSAN sector. Due to restricted timeframe of the project only a few of the papers could be made available. Some papers are still in process of development.

EXAMPLES The reports listed below touch upon sector-relevant issues to various extents:

Environmental Country Reports elaborated within the **Danube River Environmental Programme**, provide extensive statements on the situation and difficulties in the riparian countries.

Phare Country Operational Programme (COP) for Albania. Priority area: human and natural resources management, Sector: Water, Wastewater and Environment, 1996.

Aral Sea Basin Program: The five states of the Aral Sea Basin developed in cooperation with UN Development Programme, the UN Environment Programme and the World Bank a plan of action to address the crisis of this area. In the first phase seven priority programs (consisting of 19 projects) were identified.

Turkmenistan water supply and sanitation project: The project of the Government of the Republic of Turkmenistan with assistance of the World Bank aims at improving the water supply and sanitation. In a first step the actual needs and the problems were ascertained.

Environment for Europe: The Project Preparation Committee (PPC) for the Implementation of the Environmental Action Programme for Central and Eastern Europe is active in 20 countries. In 1996 on the occasion of the 9th PPC Meeting, a summary of the PPC Projects under implementation and the Matched PPC was presented.



2.3. Present situation

2.3.1. Sector administration

CEEC and NIS are going through considerable political, economic and social changes which exert a strong impact on the institutional and administrative organisation of the WATSAN sector. Some of the key elements of this process are linked to the following issues:

CENTRALIZED PLANNING

Centralised strategic and financial planning by the State has been almost completely abandoned; a firm shift towards decentralisation and privatisation is noticeable

INSTITUTIONAL STRUCTURE

With regard to institutional structure, the system is subjected to significant modifications leading to

- a more decisive role for local governments
- the creation of new river basin authorities
- separation of responsibilities of water quantity and quality
- transfer of management functions into separate ministries and district authorities (Hungary, Russia)

RESPONSIBILITY

The responsibility for water supply and treatment and infrastructure ownership is being conveyed to the municipal level, while more often than not, the State still retains the major share of the companies

DECENTRALIZATION

Decentralization has affected decision-making processes to a high degree and may result in inadequate schemes, particularly if financing is also involved, due to the lack of experience and institutional structure

LEGISLATION

New environmental legislation has been gradually introduced



2.3.2. Water supply and sanitation

Water Resources Quality

POLLUTION OF WATER RESOURCES	Most waters in populated areas and areas exposed to industrial and agricultural activities in CEEC and NIS are to a serious degree affected by contamination. The largest polluters are industry (chemical, metallurgy, cellulose), agriculture and waste water treatment plants effluents.
CURRENT ACTIVITIES	A number of regional programmes, in cooperation and with assistance of the international community, are addressing the issue of river basin and transboundary waters management (Environmental Programme for the River Danube Basin, Environment for Europe, Aral Sea Basin Program)

Water Supply

COVERAGE	In urban areas the overall state of water supply is quite satisfactory, at least in quantitative terms, but supply deficiencies occur in many rural areas
CONSUMPTION	In comparison to western figures, water consumption is relatively high because of: Large water losses from networks Low water prices or water being not metered at all
WATER LOSSES	Owing to the poor condition of the distribution network, water losses are generally high
RURAL AREAS	Water supply from private shallow wells is common in many of CEEC and NIS, while the utilised groundwater recourse is likely to be affected by pollution

Waste Water Sewerage and Treatment

COVERAGE	In urban areas of CEEC, the rate of sewer system coverage is adequately developed for the most part, shortcomings again being obvious in rural areas
OVERLOADING	Treatment plants in many cases are overloaded - hydraulically and from nutrient loads caused by untreated industrial waste water
SLUDGE	Due to non-pretreated industrial waste water, sludge is heavily contaminated with metals
SEWAGE NETWORK	The sewage network is frequently aged and poorly maintained, causing secondary contamination of water supply facilities



2.3.3. Drinking water quality

QUALITY STANDARDS	Concerning the drinking water standards in CEEC and NIS, compliance with EC directives and WHO guidelines concerning drinking water quality has been taken into focus
MONITORING	<p>The standards for the monitoring of drinking water quality vary substantially throughout the region, in terms of sampling methods and frequency, statistical procedures and reporting as well as the national quality standards as such.</p> <p>Comparability of data for drinking water is difficult.</p> <p>While data on water-related diseases or effects of chemical contamination are to some extent available, they are not suitable to allow for valid comparison.</p>
LABORATORIES	The local-level laboratories are not always equipped to monitor for many chemicals and viruses.
EXPOSURE TO MICROBIOL CONTAMINATION	Incidents of diseases linked to poor water quality (cholera, hepatitis A, typhoid fever, gastrointestinal diseases) are reported for considerable regions of CEEC and NIS.
EXPOSURE TO CHEMICAL CONTAMINATION	<p>To a certain extent, chemical contamination of drinking water is seriously affecting water quality in CEEC and NIS.</p> <p>Nitrate: a large part of the rural population is affected by high nitrate concentration from shallow wells, caused by excessive fertiliser application and rural septic tank effluents.</p> <p>In many Danube countries, bank-filtered river water is an important source of drinking water, the quality of which is highly correlated to riverine nutrient loads and pollutants.</p>

2.3.4. Common priorities and problems in the sector

On the basis of information obtained through the study, the following major common issues and priorities in the WATSAN sector could be identified (with focus on Danube basin countries):

Organisation

TRANSFORMATION OF THE SECTOR

Transfer of know-how in terms of organisation, management, planning and financing.

Owing to the process of sectorial reorganisation, phenomena of imprecisely defined, dispersed or overlapping responsibilities have at times been reported to interfere with smooth sector performance



FINANCEMENT Lack of capital in the countries in transition is hampering transformation of the sector and the implementation of even most urgent tasks.

PRICING POLICY The introduction of cost recovery and accountability as management tools has become necessary in order to ensure sustainability of operations and maintenance of the facilities.
Underpricing causes a number of problems, such as serious misuse of water, inefficient operation, inadequate maintenance and unreliable water supply and sanitation service delivery.

Technical Issues

NEW TECHNOLOGY AND PROCESSES Exchange of expertise at technical and scientific level, introduction of new technologies

WATER SUPPLY Network reconstruction and rehabilitation with leak detection and metering as important tools
Improvement of coverage in rural areas

WASTE WATER Upgrading of waste water treatment plants
Sludge disposal

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Environmental Health Aspects in the Catchment Area of the River Danube, Water Supply and Sanitation, WHO - Regional Office for Europe, Techware 1994
Concern for Europe's Tomorrow, WHO - Regional Office for Europe, 1994, 1995
Management Training for Municipal Water Authorities, UNDP / GEF, 1995
Quo vadis water quality management in Central and Eastern Europe, L. Somlody, in: Water Quality International '94, 1994



part II

**INTERNATIONAL
PROGRAMMES**



ENVIRONMENT FOR EUROPE



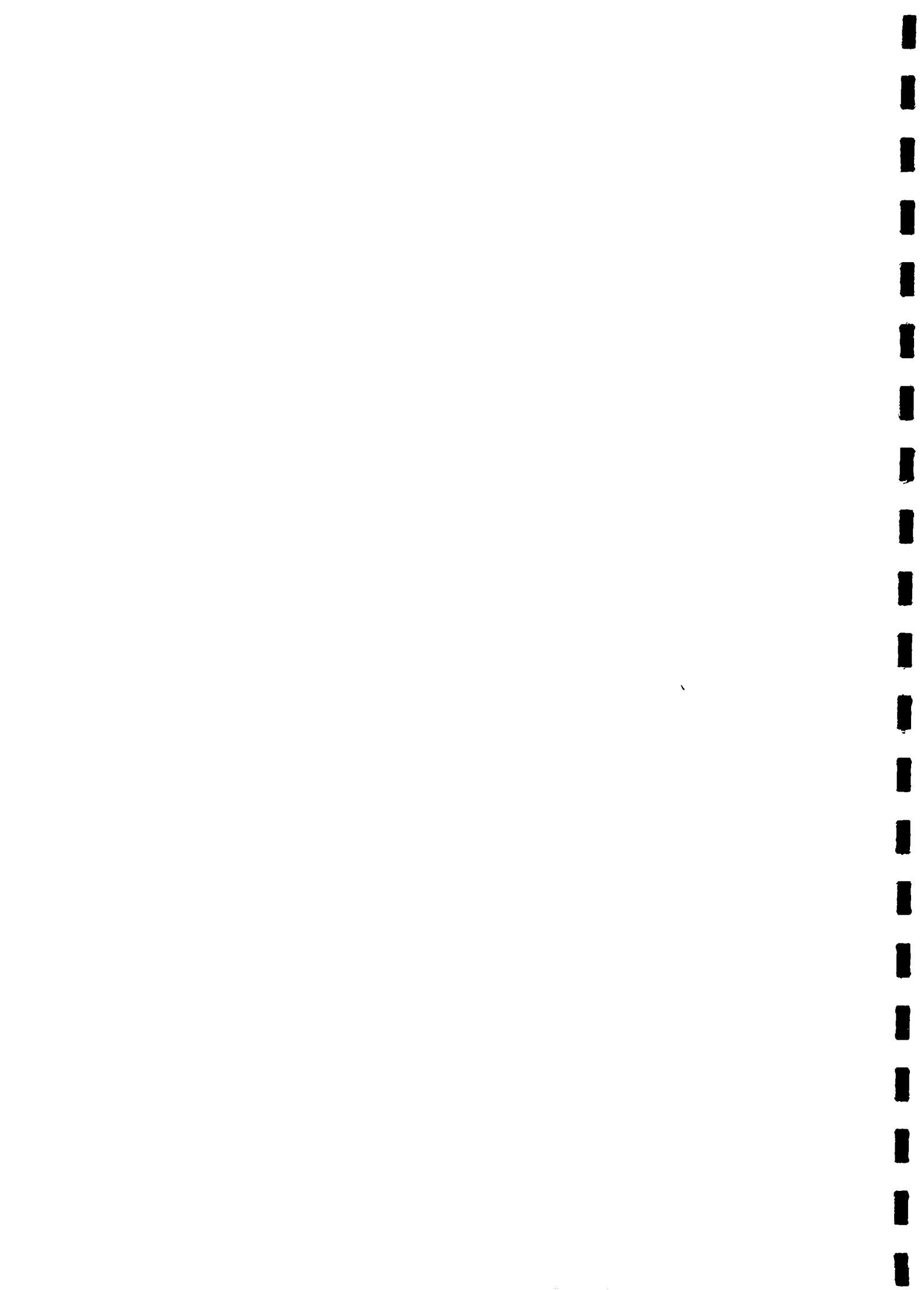
PROJECT PREPARATION COMMITTEE (PPC) FOR THE IMPLEMENTATION OF THE ENVIRONMENTAL ACTION PROGRAMME FOR CENTRAL AND EASTERN EUROPE

List of matched PPC Projects (status Oct. 1996) Only Projects concerning the target countries of this report are taken into consideration.

COUNTRY	ENVIRONMENTAL SECTOR	PROJECT TITLE	DONORS / NATIONAL FONDS INVOLVED	PROJECT STATUS	SHORT DESCRIPTION OF THE PROJECT
Albania	Water supply Waste water	Medium Cities Water Supply and Sewerage Rehabilitation	Austria Japan Switzerland EBRD	Under Preparation	To eliminate water shortages and associated health risks to the existing population in the selected medium-size cities to establish a strong local institutional framework for the provision of water supply and sewerage services
Albania	Biodiversity	Coastal Zone Management Lake Ohrid (joint Project with Macedonia)	EU-Phare Switzerland Austria GEF IBRD	Under Preparation	Sustain unique biodiversity Provide a framework for the long-term sustainability Preparation support is sought to finance identification mission to determine high priority measures: - water treatment facilities - additional infrastructure facilities - institutional arrangements



COUNTRY	ENVIRONMENTAL SECTOR	PROJECT TITLE	DONORS / NATIONAL FONDS INVOLVED	PROJECT STATUS	SHORT DESCRIPTION OF THE PROJECT
Kazakhstan	General environment	Elaboration of the National Environmental Action Programme (NEAP)	Austria France IBRD	Under preparation	To identify key environmental issues To set priorities and put forward a plan of action to strengthen the institutional, policy and legal framework for environmental management help identify investment priorities. Preparation support is sought for performances of the NEAP.
Macedonia	Biodiversity Water	Lake Ohrid Management Project	Switzerland GEF IBRD	Under preparation	Sustain unique biodiversity Preparation support is sought to finance identification mission to determine high priority measures in water treatment facilities, additional infrastructure facilities and institutional arrangements
Slovenia	General environment	Slovenia Environmental Infrastructure Investment Fund	Germany UK EBRD EU-Phare	Under preparation	Support the development of Slovenia's new environmental fund.



COUNTRY	ENVIRONMENTAL SECTOR	PROJECT TITLE	DONORS / NATIONAL FONDS INVOLVED	PROJECT STATUS	SHORT DESCRIPTION OF THE PROJECT
Slovenia	Waste water Waste management	Maribor Waste Water Concession Project	Austria EU-Phare EBRD	Under Preparation	Financing of the construction of waste water treatment plant and solid waste landfill for partnership between private partner and municipality Support to assist municipality in contract evaluation and to short-term action programme
Slovenia	Waste water	Maribor Short-term Action Programme for Sewerage Investment	EU-Phare EBRD	Under preparation	Linked to Manbor Concession Project Investment programme to improve sewerage services Connect unserved areas to the proposed waste water treatment plants Protect ground water services
Uzbekistan	Water supply	Rural Water Supply (demonstration project)	Germany IBRD	Under preparation	Provision of clean water, sanitation, rural credit and test to improve project methodology. Preparation support is sought for the development of water supply, establishment of rural credit system and preparation of health programme



COUNTRY	ENVIRONMENTAL SECTOR	PROJECT TITLE	DONORS / NATIONAL FONDS INVOLVED	PROJECT STATUS	SHORT DESCRIPTION OF THE PROJECT
Uzbekistan	General environment	National Environmental Action Programme	Switzerland IBRD	Under preparation	<p>Identify key environmental issues</p> <p>Set priorities and put forward a plan of action to strengthen the institutional policy and legal framework for environmental management</p> <p>Help identify investment priorities</p> <p>Preparation support is sought for the implementation of the NEAP</p>

REFERENCES

- [103] Project Preparation Committee (PPC) for the Implementation of the Environmental Action Programme for Central and Eastern Europe, Environment for Europe, PPC Project Pipeline, 1996



DANUBE STRATEGIC ACTION PROGRAMME



IMPLEMENTATION PROGRAMME 1996 - 1999

CONTAMINANTS AND HUMAN HEALTH:

In the River Danube Basin a heavy pollution of surface and groundwater with sewage, lack of central public water supplies, excessive application of agrochemicals and emissions and spillage of industrial chemicals as well as petrol producers is existing. Toxic micropollutants damage ecosystems and contaminate drinking water sources where they threaten human health. There is an urgent need throughout the Danube basin first to reduce or eliminate the discharge of polluting industrial effluents and secondly to develop methods for dealing safely with contaminated sediments and soils. Main topics are:

- Nutrient Removal
- Clean Production Technology and Industrial Waste
- Contaminated Sediments and Contaminated Land

COUNTRY	SUBJECT	PURPOSE
Slovenia	Improved WWTP Tourist Resport Slatina Multi-purpose use of impoundment	Feasibility Study Identify WWTP process to protect an amenity lake
Slovenia	Moster Reservoir restoration	Feasibility & Project removing contaminated sediment from the reservoir with minimum release of heavy metals into the water column and downstream wetlands
Slovenia	Contaminated sediments in quarry lakes	Feasibility of remediation of lakes in old quarries with contaminated sediments

SUSTAINABLE LAND USE:

- Reduction in the use of agrochemicals in order to protect transboundary aquifers; reduce the load of nitrogen reaching the Black Sea
- Effective management of waste from intensive pig farms

Protection of Water Resources comprises:

Develop an awareness among farmers of the need for sustainable (low-input) agricultural practices and to make the public aware of the importance of phosphate-free detergents.



COUNTRY	SUBJECT	PURPOSE
Slovenia	Arable regions: groundwater protection model	<ul style="list-style-type: none"> • Develop two scenarios for groundwater protection in order to establish advice services to farmers in an alluvial lowland • establish network with similar exercises in other countries in the basin • Organise basin wide workshops to disseminate results
Slovenia	Management of waste from pig-farms	<ul style="list-style-type: none"> • Optimising pig waste treatment technology to minimise pollution • Maximising use of manure as a fertilizer

SUSTAINABLE USE OF WATER RESOURCES

Polluted water and man-made changes to the hydrological system are major threats to human health and to the environment, wetlands and biodiversity.

The main polluters responsible for the deterioration in surface and groundwaters in the Basin are:

1. municipalities with inadequate treatment facilities for waste waters
2. industrie with little or no treatment of waste and production waters and the unsatisfactory disposal of contaminated solid waste
3. agricultural sector with excessive use of pesticides and fertilisers and poor agricultural practices

The major concern of the Danube countries, the donors and the financing institutions is the sustainable use of the water resources in the Danube River Basin. Proposals in this group concern international cooperation in water management and the resolution of competing interest. International cooperation and agreement on standards is essential since the transboundary tributaries link all the countries and a common approach is the only way to achieve consistency throughout the basin. Proposals involving six countries were divided between the four river basins on which they were based, except the Drava and Sava Studies. The three basin sub-groups are: Sava/Drava/Mura (Slovenia, Hungary, [Austria], possibly later Bosnia-Herzegovina and Croatia); The Tisza (Hungary, Slovenia, Ukraine, Slovakia); the Prut/Jiu (Romania, Moldova, Ukraine)



COUNTRY	SUBJECT	PURPOSE
Slovenia Hungary	<ul style="list-style-type: none"> • Sava Catchments Management Plan • Cost-effective water management Sava • Integrated transboundary modelling tools • Sava Navigability 	Development of an ecologically sustainable integrated strategy for management and use of the waters of the Sava
Slovenia Hungary Croatia Austria	Drava and Mura river basins: Cost-effective management	Development of an ecologically sustainable strategy for management and use of the waters of the Mura and the Drava
Slovenia	Drava lowlands: conflict resolution among users with competing interests	Demonstration Project. Development of a method for the rational allocation of resources between competing users of the Drava

INSTITUTIONAL CAPACITY BUILDING

The diversity of human activities in the Danube basin places demands on the utilisation of water resources. These demands will only increase as the economies of the countries develop. At the same time it places great pressure on environmental quality. Large capital projects have exposed serious conflicts over land and water use. Resolving conflict between competing interests and balancing short term economic interest against the long term protection of water resources and the environment is particularly difficult for countries whose economies are in transition.

Establishment of new national and local governmental structures, privatisation and de-centralisation are at the same time both threats to and opportunities for not only maintaining but also improving the state of environment.

Cornerstones in institutional development and capacity building are:

- to assist in improving existing structures or to establish new ones
- to assist in raising environmental awareness among politicians, decision makers and the general public
- to assist in generating alliances and in developing a sound basis for non-governmental environmental organisation and citizen based organisations

The model projects in the Institutional Capacity Building group have a high likelihood of replicability throughout the Danube basins and elsewhere. The projects are aiming at solving local practical problems, which in nature are universal.

The proposals concern the Issues Training centres and Basin Cooperation.



COUNTRY	SUBJECT	PURPOSE
Slovenia	Encouraging cooperation between small communities for water services	Establish Water communities for cooperation on establishment, operation and use of water utilities

BASIN WIDE PROJECTS

The Basin Wide Projects group will be characterised partly by technical assistance projects and partly by institutional and capacity building projects. General support to the NGO and CBO communities fall under this group, and activities dealing with general information.

The proposals are related to the subjects

- Public Relations
- Applied Research
- Data and Information Collection and Management

Public Relations:

PROJECT TITLE	PURPOSE
Danube Watch	Continue to publish and to distribute four annual issues of the Danube Watch Newsletter
"National Danube Watch"	Edit and publish national newsletters distributed from the three sub-regional NGO centres focusing on local issues relevant to the SIP, e.g. reporting on progress from demonstration projects and Danube Grant projects
Action for a Blue Danube	Publish and distribute the second version of the Brochure Translate to principal national languages and distribute

Applied Research:

SUBJECT	PURPOSE
Applied Research Programme	Launch a new programme based on recommendations and findings



Data and Information collection and management

SUBJECT	PURPOSE
Monitoring, Laboratory and Information Management	Purchasing and training, operation, support Sub-Group and Working group meetings
Accidental Early Warning System	Development and purchasing, training, support Sub-Group
Data Management	Finish development of DANIS and fill databases, make DANIS technical available on Internet to core users, support Sub-group
Danube Projects Data Bank	Establish the Data Bank on hot-spot projects for the CEE Danube Countries and annually update and widely distribute the Data Bank list and analysis to Governments, donors, IFIs, and the Commission/Task Force networks
Inventory of priority pollutants in the Danube River Basin	Establish an inventory of discharges of major pollutants from municipalities, industry and agriculture and elaborate an agreed list of priority measures.

REFERENCES

- [104] Danube Programme Coordinators, national and international NGOs, interim Secretariat for the International Commission for the Danube River Protection Convention, Danube Strategic Action Plan - Implementation Programme 1996-1999, 1996



PHARE - TACIS



LIST OF ACTUAL PROJECTS

Only target countries of this report are considered

COUNTRY	SUBJECT	PURPOSE
Bosnia-Herzegovina	II Tranche of the Essential Aid Programme. Phare-national Programme	Financing of projects concerning the issues Water supply and Sanitation
Slovenia	Sewerage System in the municipality of Gornja Radgona Cross Border Cooperation-Programme	Construction of the sewerage system
Slovenia	Maribor-Short Term Action Plan Phare-EBRD-Cooperation / Bangkok Facility	

In spring 1996 TACIS started to establish several years' Programmes for all GUS-Republics except Belarus, Kyrgyz Republic, Turkmenistan, Tadjikistan and Mongolia. The Programme comprises environmental measures concerning Institutional issues, legislation and education.

PHARE

COUNTRY	SUBJECT	PURPOSE
Slovenia-Italy	Eco-Adria Programme CBC-Programme	Upgrading of Sewage Treatment plants; Sewerage
Macedonia-Greece	Protection of the Dirjan-Sea and Vardar-River CBC-Programme	
Bosnia-Herzegovina	Water and Sanitation Projects with financial support of the EU	

REFERENCES

- [107] Österreichische Gesellschaft für Umwelt und Technik-Ostinfo, OST-INFO 2/97, 1997
- [108] Österreichische Gesellschaft für Umwelt und Technik-Ostinfo, OST- INFO 5/96, 1996



ARAL SEA BASIN PROGRAM



GENERAL INFORMATION

NAME	Aral Sea Basin Program
STATUS	United Nations Development Programme United Nations Environment Programme The World Bank
INVOLVED COUNTRIES	Kazakstan, Kyrgyztan, Tajikistan, Turkmenistan, Uzbekistan,
DONORS	UNEP, Danida, Finnida Donor support varies within the program depending on the project. European Community, GEF, USAID, WHO; United Kingdom, Switzerland, Denmark, Canada, the Netherlands, Sweden, USA, the five Aral Sea Basin states
BACKGROUND	Following the independence of the Aral Sea Basin states, the five republics requested assistance from the international community in addressing the Aral Sea Basin crisis.
OBJECTIVES	<ul style="list-style-type: none">• to stabilize the environment of the Aral Sea Basin• to rehabilitate the disaster zone around the Sea• to improve the management of the international waters of the Aral Sea Basin• to build the capacity of the regional institutions to plan and implement the above programs



AGENDA

PLAN OF ACTION	<p>The Aral Sea Basin States worked in cooperation with the United Nations Development Programme, the United Nations Environment Programme and the World Bank a plan of action to address the crisis. The plan includes actions to mitigate the impacts of environmental degradation, to develop sustainable water management strategies and to develop regional institutions with the capacity to implement the Program.</p>
PRIORITY PROGRAMS	<p>Seven priority Programs consisting of 19 projects were identified to be implemented as a first phase of the Aral Sea Basin Program. The projects fall in three categories:</p> <ol style="list-style-type: none">1. Initiating steps to improve the environment around the sea and the river deltas2. Improving the conditions in the disaster zone3. Managing the water resources of the Basin <p>For each project a short preparation phase has been defined, followed by a longer implementation phase.</p>
INTERNATIONAL SEMINAR IN WASHINGTON, 1993	<p>The Seminar was organised to mobilize the support of donor countries and international agencies for the proposed program</p>
MEETINGS IN PARIS, 1994	<p>The Heads of States of the Aral Basin Republics approved the Program in January 1994 in Paris In June 1994 the donors community pledged to support the preparatory studies required to implement Phase 1.</p>
MEETING OF THE HEADS OF STATE IN DASHKHOVUZ, 1995	<p>The meeting was devoted to issues concerning the implementation of the Aral Sea Program. An EC Board has been established.</p>
MEETING OF THE ECOLOGY COMMISSION IN ASHGABAD, 1995	<p>Formation of a Secretariat in Ashgabad and a Scientific Information Center (SIC) has been formed. The meeting approved an action plan for the remainder of 1995 and a general strategy for the Commission to pursue over the next two years</p>
UN CONFERENCE, 1995	<p>Conference on Sustainable Development of the Aral Sea Region</p>



COORDINATING STRUCTURE

REGIONAL APEX INSTITUTIONS

The cornerstones of the Program are the regional apex institutions established by the Heads of State:

- The Interstate Council for the Aral Sea (ICAS):
Body of 25 high level representatives from the five states that meets twice a year
- The Executive Committee (EC):
Key Organisation for developing and implementing policies and programs
- The International Fund for the Aral Sea (IFAS):
Established to aid in financing the Program; is intended to channel financing from the five basin countries.

PROGRAM GROUPS

The Program groups have been created for each of the seven sub-programs. Close working relationship with the EC - is covered in efforts under the Supplementary Capacity-building Program.

The Program groups comprise local experts to develop and coordinate the Program components.

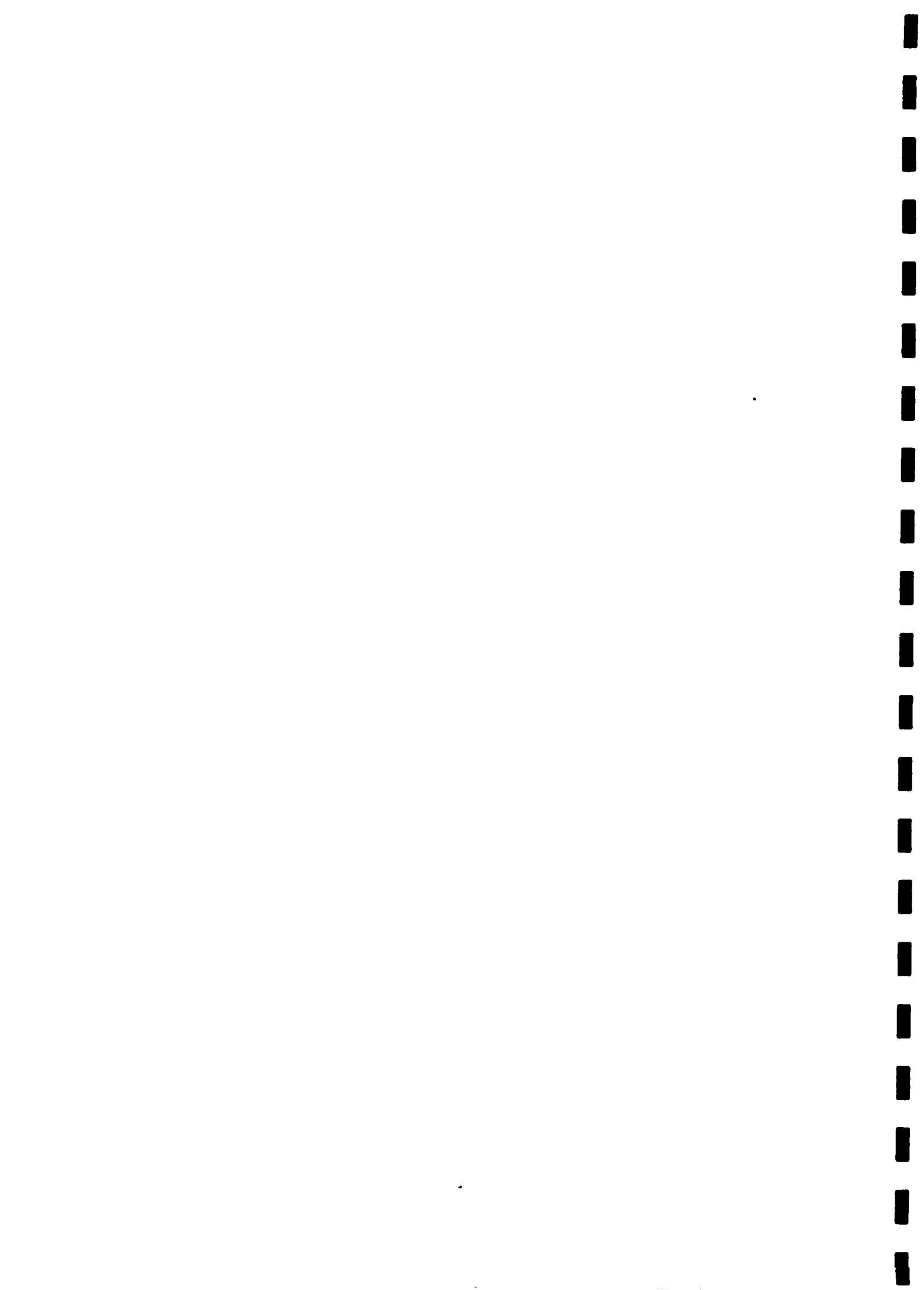
FURTHER INSTITUTIONS

Interstate Commission for Socioeconomic Development and Scientific, Technical and Ecological Cooperation (ICSDSTEC):

The "Ecology Commission" consists of three representatives from each state

Interstate Commission for Water Coordination (ICWC):

Established in 1992; Consists of the Water Resources Ministers of the five states and its two River Commissions (BVOs). The BVOs implement the interstate water allocation agreements for the Syr Darya and the Amu Darya rivers and the Aral Sea.



PROJECTS

PROJECT 1 1	Regional Water Resources Management Strategy
EU WARMAP PROJECT	The report on "Formulation and Analysis of Regional Strategies on Land and Water Resources" was prepared. Part 1 deals with the existing situation, gives an overview assessment of the water and land resources in the basin and national and regional planning Part 2 Covers planning for future regional agreements, conceptual and analytical framework for planning and analysis, an assessment of required work under Phase II of the project
PROJECT 1 2	Improving the Efficiency and Operations of Dams (resolving conflicts between power generation and irrigated water use, especially in water-short years)
PROJECT 1.3	Sustainability of Dams and Reservoirs (Sustainability of River Channels)
PROGRAM 2 1	Hydrometeorological Services (modern technology, data collection, operations and management of hydrometeorological services)
PROGRAM 2 2	Regional Environmental Information System
PROGRAM 3 1	3 1a Water Quality Assessment and Management 3.1b Agriculture Water Quality Improvement
PROGRAM 3.2	Uzbekistan Drainage Project (potential means for reducing salt inflows to and outflows from irrigated lands, managing drainage water at the farm and regional level)
PROJECT 4 1	Wetlands Restoration
PROJECT 4.2	Restoration of the Northern Part of the Aral Sea
PROJECT 4 3	Environmental Studies (biodiversity, salt and dust storms, water quality, limnology and climate changes)
PROJECT 4 4	Syr Darya Control and Delta Development Project
PROJECT 5 1	Uzbekistan Water Supply, Sanitation and Health
PROJECT 5 2	Turkmenistan Water Supply
PROJECT 5.3	Short Term needs in the provinces Kzyl-Orda and Ak'ubinsk Oblasts
PROJECT 5.4	Medium-term Water Supply
PROJECT 5.5	Long-term Water Supply
PROJECT 6	Integrated Land and Water Management in the Upper Watersheds
PROJECT 7	Management information systems, communications, data collection and monitoring
PROJECT 8	Supplementary Program on Capacity Building

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part III

COUNTRY ISSUE PAPERS



ALBANIA



GENERAL INFORMATION

POPULATION	3.25 millions Capital Tirana: 243,000
POPULATION DENSITY	113 persons/km ²
SURFACE	28,748 km ²
ADMINISTRATION	Albania is organized in 36 administrative territorial units, which are further divided into communities The urban-rural composition is about 30-70%
TOPOGRAPHY	There were distinguished five major regions: <ol style="list-style-type: none">1. highest summits: Albanian alps2. hills, mountains of northern and middle Albania3. sea and basin plateau4. the lowlands and hilly country with the Skutarisea5. Albanian Epirus
CLIMATE	humid sub-tropical zone of the Northern Hemisphere mediterranean climate av. Temperature Tirana: 20,9°C av. annual rainfall: 1300 mm
MEMBERSHIPS	Member of the Council of Europe EFTA OSZE, UNO NATO Partnership for Peace agreement
POLITICAL BACKGROUND	National state, sovereign and independant government: Republic since 1992

☞ references [101], [109], [113]



WATER RESOURCES

RIVERS	largest rivers: Drin Vjosa Semani Devoll Shkumbin
WATER RESOURCES	Most of the rivers have a torrential character rivers are inequally distributed over the territory
LAKES	biggest lakes: Ohrid-Sea Skutari-Sea Prespa-Sea
GROUNDWATER RESOURCES	Generally with a better quality than that of the surface waters
FURTHER INFORMATIONS	Drinking water is mainly produced from groundwater

☛ reference [112], [101]

INSTITUTIONAL AND LEGAL FRAMEWORK

CENTRAL STATE LEVEL

MINISTRY OF HEALTH AND ENVIRONMENT	Controls the quality of the drinking water regarding health
MINISTRY OF CONSTRUCTION AND TOURISM	Main responsibility for the sector of drinking water Improvements in the supply of water to rural and urban areas; Financial competence which attributes investments (national and international funds);

COMMUNAL LEVEL

WATER WORKS	Water supply systems are administered by water works; theses are under jurisdiction of District, Municipality or Commune authority, according to the location of the zone and territory which they supply. Each water work is a state owned enterprise which operates independently. Responsible for operation and maintenance
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☛ reference [105], [114]



STATUS OF DRINKING WATER SUPPLY

MAIN SOURCE	Consumer demand for drinking water is covered by the output from springs and wells.
POPULATION SUPPLIED WITH PIPED WATER	Approximately 80% of the population has access to piped drinking water Supplies are provided intermittently for a number of hours each day (mainly due to poor management, low levels of maintenance, limited funds for repairing defects, increasing demands) It is often impossible to provide sufficient pressure in the main system.
TARIFFS	Domestic Consumers: Fixed tariff of 5 lek per m ³ , established by the Council of Ministers Non-domestic consumers: Calculated by the individual water works, max charge: 60 lek per m ³ , average charge: 10 leks per m ³
ACCOUNTED FOR WATER	Tirana Waterworks managed to collect only 27 % of its water production, Dürres Waterworks collect 35 % and Elbasan 32 %. Existing forms of management and organisation in the water industry are inefficient.
MAIN PROBLEMS	<ul style="list-style-type: none">• Quantity and quality of drinking water• Contamination of drinking water resulting from the absence of sewage treatment as well as solid waste disposal• Bacteriological standards are at risk due to the deteriorated state of the mains infrastructure.• Monitoring of drinking water quality is inadequate since no municipality has basic laboratory facilities• Losses of water put in the net are estimated to be as high as 75% of the total entering the system due to leakage losses from deteriorated pipe networks and due to illegal connections, absence of metering and faulty internal plumbing systems.

☞ reference [106], [116]



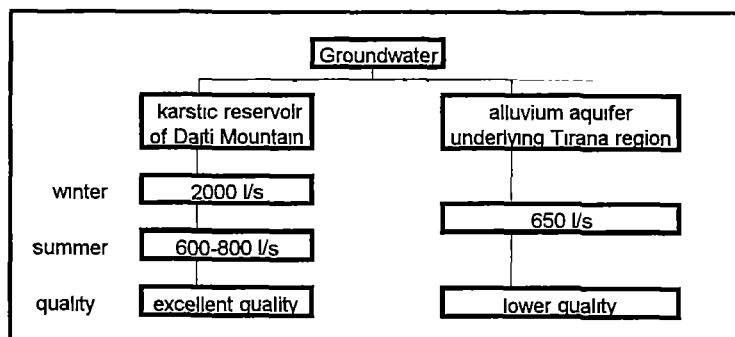
STATUS OF DRINKING WATER SUPPLY

THE CITY OF TIRANA

POPULATION SUPPLIED WITH PIPED WATER

Domestic water consumption	l/person*d	150
length of network	km	900
number of people supplied		243 000

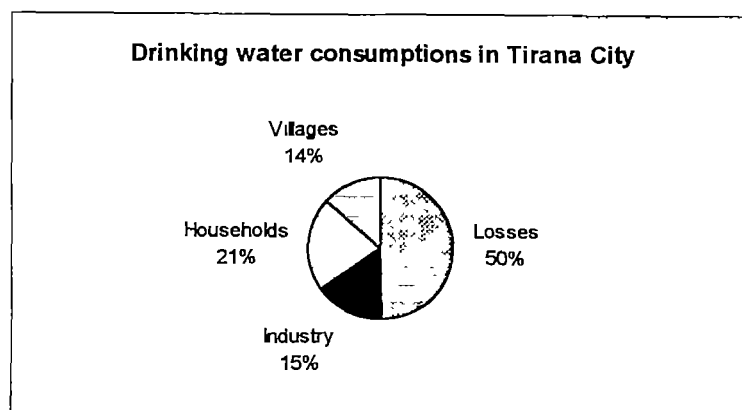
SOURCE OF DRINKING WATER PRODUCTION



TOTAL INSTALLED PRODUCTION CAPACITY

Production (1000 m ³)	Expected	Achieved
	50,500	50,990
Invoiced Volume (in 1000m ³)	32,800	25,695
Losses (in 1000 m ³)	17,700	25,295
Losses (in %)	35	50
Details of invoiced volume (in 1000 m ³)		
Households	8,000	7,812
Industry	17,800	10,883
Villages	7,000	7,000

Drinking water consumption in Tirana City, 1993



reference [105], [114]



STATUS OF SEWERAGE / WASTE WATER TREATMENT

TREATMENT	<p>There are, at present, no wastewater treatment facilities to serve the wastewater collection systems in any of the municipalities</p> <p>Collected wastewaters from sewerage networks are discharged, untreated, to inland surface waters or directly to the sea where beaches are used for bathing</p> <p>☛ reference [106], [116]</p>
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STATUS OF SEWERAGE / WASTE WATER TREATMENT

THE CITY OF TIRANA

POPULATION CONNECTED TO THE SEWERAGE SYSTEM	<p>Most of the households are connected to the sewerage system.</p> <p>The total length of the network is 540 km</p>
MAINTENANCE	<p>There is no regular maintenance Maintenance is mainly limited to emergency interventions</p> <p>☛ reference [105], [114]</p>

MAIN PROBLEMS

- the low quality of groundwater from the Tirana region underlying aquifer
- the old age of the storage reservoirs
- insufficient dimensions in several sectors
- deteriorations that cause extremely frequent breaks and losses in the distribution network
- extremely rapid emptying of reservoirs, the reservoir downstream valves are opened three times a day
- the network works under insufficient pressure
- during shutdown periods, pipes get empty and because of the resulting depression an inflow of contaminated water comes from the sewage system through cracks in the network
- drinking water contamination
- increasing water consumption (irrigation, low tariffs, higher demand)

☛ reference [105], [114]



MAIN FUTURE TASKS / ACTIVITIES

PRIVATISATION	Change the form of management and organisation
TARIFF STRUCTURE	Introduction of a new system of water tariffs based on the principle of full cost recovery. Develop a suitable ownership strategy Installation of water meters Law to define, regulate and implement differentiated water prices.
SUPPLY SYSTEM	Rehabilitation of the distribution network Improvements to water intakes and the renovation of pumping stations

☞ reference [116]

PHARE COUNTRY PROGRAMME (OBJECTIVES)

- support the rehabilitation of the existing water supply distribution systems and wastewater collection networks
- safeguard public health by improving the availability and quality of drinking water and increasing the efficiency of wastewater collection networks
- support environmental improvement through the reduction of water pollution and in particular by the construction of wastewater treatment facilities
- promote efficient, safe and ecologically sustainable management and use of water resources
- strengthen the institutions involved in environmental protection and to support the development and enforcement of environmental regulations

☞ reference [106]



INTERNATIONAL COOPERATION

The World Bank

USAID: program on the restructuring of illegal housing

USAID: program on protection of the lagoon against contamination and the drafting of laws on the fauna and flora

METAP: program on coastal zones development

CAMP program on coastal zones development

PHARE: program on the management of natural resources

☛ reference [105], [114]

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MACEDONIA



GENERAL INFORMATION

POPULATION	2.075.000 Capital Skopje: 563.301
POPULATION DENSITY	81 persons/km ²
SURFACE	25 713 km ²
ADMINISTRATION	38 municipalities including the capital comprising 5 municipalities
POLITICAL BACKGROUND	Republic since 1991

☛ references [109]

PUBLIC SECTOR INVESTMENTS - PROJECT PROFILES

CONSTRUCTION OF A FILTER STATION FOR WATER SUPPLY OF MAKEDONSKA KAMENICA

BRIEF DESCRIPTION OF THE PROJECT The filter station is supposed to purify 40l per second for Makedonska Kamenica, as it contains, inter alia, increased managanese components.
Starting Year: 1996
Estimated Year of Completion: 1997

IMPLEMENTING AGENCY Ministry of Urban Planning, Civil Engineering and Environment

STUDIES Main Project for water supply of the town of Makedonska Kamenica (Author: „Rading“, Skopje, 1995)

CONSTRUCTION OF WATER SUPPLY AND A FILTER STATION IN KOCHANI

BRIEF DESCRIPTION OF THE PROJECT The project includes intake of water from Orizarska River, pipeline from there to the filter station and a filter station construction
Starting Year: 1997
Estimated Year of Completion: 1998

IMPLEMENTING AGENCY Ministry of Urban Planning, Civil Engineering and Environment





YUGOSLAVIA



GENERAL INFORMATION

POPULATION	10.394 millions Capital Belgrade: 1.088 million
POPULATION DENSITY	101.7 persons/km ² 51.2 % urban population
SURFACE	102,350 km ² Serbia: 88,412 km ² Montenegro: 13,938 km ²
STRUCTURE OF LOCALITIES	urban 4.7 % rural 70.8 % mixed 24.5%
ADMINISTRATION	The Federal Republic of Yugoslavia consists of Serbia including Kosovo and Vojvodina and of Montenegro.
BIGGEST CITIES	Novi Sad (Capital of Vojvodina). 170,029 inhabitants Nis, 160,376 inhabitants Kragujevac 146,607 inhabitants Pristina (Capital of Kosovo): 108,020 inhabitants Subotica: 100,219 inhabitants Podgorica (formerly Titograd, Capital of Montenegro): 96,074 inhabitants Zrenjanin: 81,074 inhabitants
POLITICAL BACKGROUND	Federal Republic since 1992
CLIMATE	annual rainfall 820 mm In the north: continentale climate (cold winter, hot, humid summers with well distributed rainfall) central portion: continental and Mediterranean climate south: Adriatic climate along the coasts; hot, dry summers and autumns and relatively cold winters with heavy snowfall inland
TERRAIN	Extremely varied: To the north: rich fertile plains To the east: limestone ranges and basins To the southeast: ancient mountain and hills To the southwest: extremely high shoreline with no islands off the coast

☛ references [109], [117], [118]



WATER RESOURCES

WATER RESOURCES Yugoslavia has fairly good natural water resources.

180 sources of ground water as springs and karst
springs

170 wells

30 sources of surface water (rivers and accumulations)

WATER SUPPLY 78.8 % is captured from underground and spring waters
21.3 % captured from surface waters

WATER SUPPLY IN LOCALITIES

Water quantity captured from	1990	1993
Underground	78.4 %	78.7 %
Surface waters	21.6 %	21.3 %
Consumed water quantities	1990	1993
In households	56.7 %	64.3 %
For other purposes	38.9 %	31.3 %
For community requirements	4.4 %	4.4 %

WATER SUPPLY IN INDUSTRY, MINING AND QUARRING

Used water quantities	1990	1993
from own water supply	49.9 %	50.0 %
from surface waters	49.7 %	49.9 %
from underground and spring waters	0.14 %	0.04 %
Consumed water quantities	1990	1993
For Production	97.8 %	98.4 %
For cooling purposes	2.1 %	1.4 %
For other purposes	0.1 %	0.2 %

FURTHER INFORMATIONS

The problems with surface water and water from the wells close to rivers are:

water with a lot of organic compounds (humic acids etc.)

bacteriologically contaminated water requiring proper water treatment

☞ reference [117]



STATUS OF DRINKING WATER SUPPLY

POPULATION SUPPLIED WITH PIPED WATER

Centralized water supply systems exist in towns and settlements and serve about 65 % of the total population. 35 % are served from the local waterworks or from small individual bore holes of wells.

Variations in urban water supply between some regions are significant. The most developed waterworks are located in Belgrade, Novi Sad, Nis, Podgorica and Kragujevac

POPULATION SUPPLIED WITH PIPED WATER

Coverage	65 %
Percent of urban population	75.8%
Percent of Rural population	32.6 %

LENGTH OF THE PUBLIC WATER SUPPLY NETWORK

Total length	34,187 km
Distributive network	23,796 km
Main water supply network	10,291 km

AVERAGE WATER CONSUMPTION

Average water consumption per household and year	158,500 m ³
Consumption per person and day	120 l
Average water consumption per person and year	43,800 m ³
Irrigation per year	189.8 million m ³
Total Water consumption per year	189.7 million m ³

PROPORTION

Households	64.3 %
Community requirements	4 4 %
other purposes	31.3 %

reference [117]



DRINKING WATER
QUALITY

Drinking water quality is regulated according to national standards which are complying with EU standards and WHO recommendations.

The system for quality control of drinking water is the same throughout the country and is centralized.

In general, drinking water quality from urban water supply system is not satisfactory. The most frequent chemicals deficiency of drinking water is the absence of residual chlorine, increased content of iron and ammonia. There are no statistics on the health impact caused by chemicals in drinking water.

The most frequent bacteriological pollutants are E. coli, Enterobacter and Coliform bacter, and the most frequent diseases are enterocolitis and dysentery bacillaris. However, bacteriological pollutants have a direct impact on the appearance of water borne disease.

☞ reference [117]

STATUS OF SEWERAGE / WASTE WATER TREATMENT

COLLECTED
SEWERAGE WATER

20.1 % of localities
79.9 % of industry

LENGTH OF PUBLIC
SEWERAGE
NETWORK

Length of the network	9,902 km
Collection network	8,518 km
Main collector	1,384 km

POPULATION
CONNECTED TO THE
PUBLIC SEWERAGE
NETWORK

35 % of the total population
47 % of the population in urban areas

WASTE WATER

Waste Water Quantities from Localities

	1990	1993
from households	55.4 %	62.0 %
from economy	39.2 %	33.1 %
from non-economy	5.4 %	4.9 %

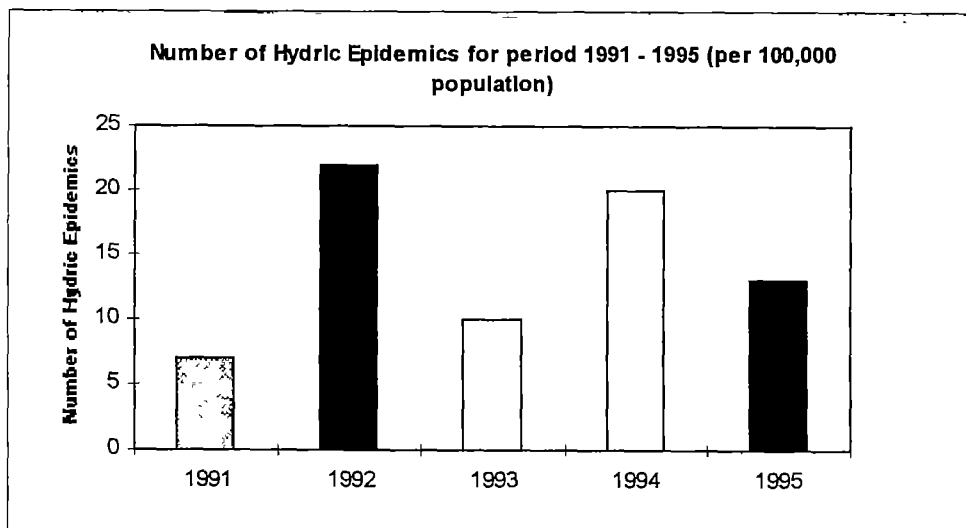
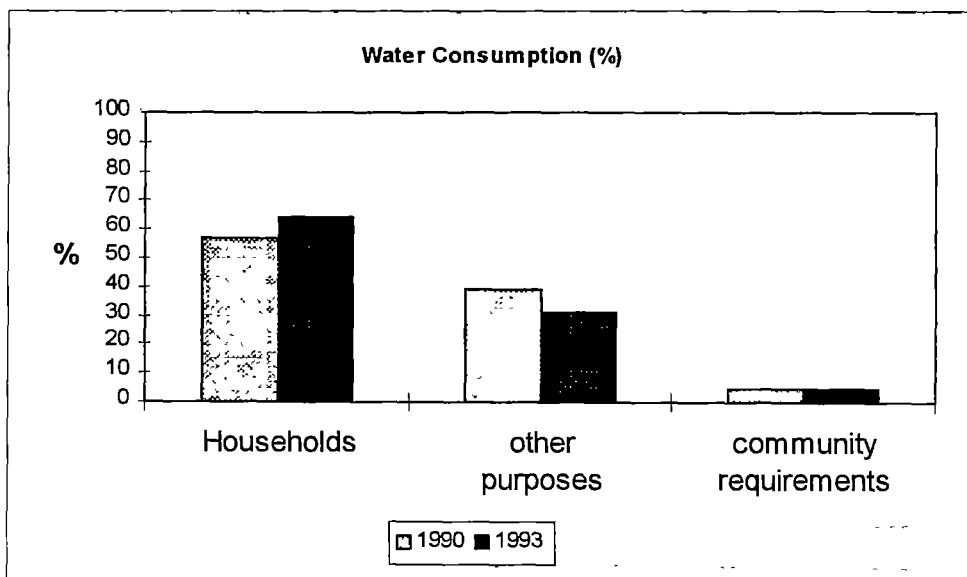
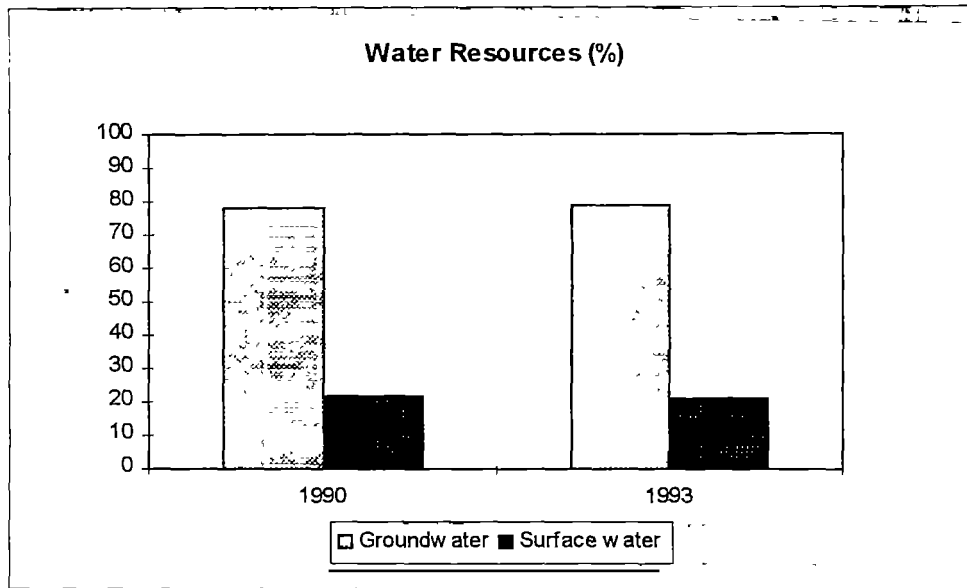
WASTE WATER

Waste Water Quantities from Industries

	1990	1993
from production	6.8 %	50.3 %
waters used for cooling purpose	91.9 %	43.9 %
other waste waters	0.4 %	5.0 %
sanitary waste waters	0.9 %	0.8 %

☞ reference [117],





reference [117]



MAIN PROBLEMS

MONITORING	Improvement of the water quality monitoring
HEALTH	Systematic identification of risk factors in the environment. Development of an environmental health monitoring programme on drinking - water Promotion of health aspects of drinking water supply and basic sanitation in Yugoslavia
TRAINING	Establishment of a national centre for permanent education and training of personnel for work in wastewater and drinking water treatment plants.
ENVIRONMENT	Pollution of coastal waters from sewage outlets, especially in tourist-related areas such as Kotor Water pollution from industrial wastes dumped into the Sava which flows into the Danube

☞ reference [117], [118]

PRIORITY ACTIONS

WATER SUPPLY, SEWERAGE SYSTEM	Cover the country by the systems of water supply, waste disposal and treatment, and safe water disposal.
DRINKING WATER	Maintain the quality of drinking-water resources for population not served by the public system
POLICY	Harmonize water supply and sanitation policy with the general health and environmental policy
ENVIRONMENTAL POLICY	Prevent pollution Improve the quality of raw water Develop the national information system to allow the collection of data at regional and national level

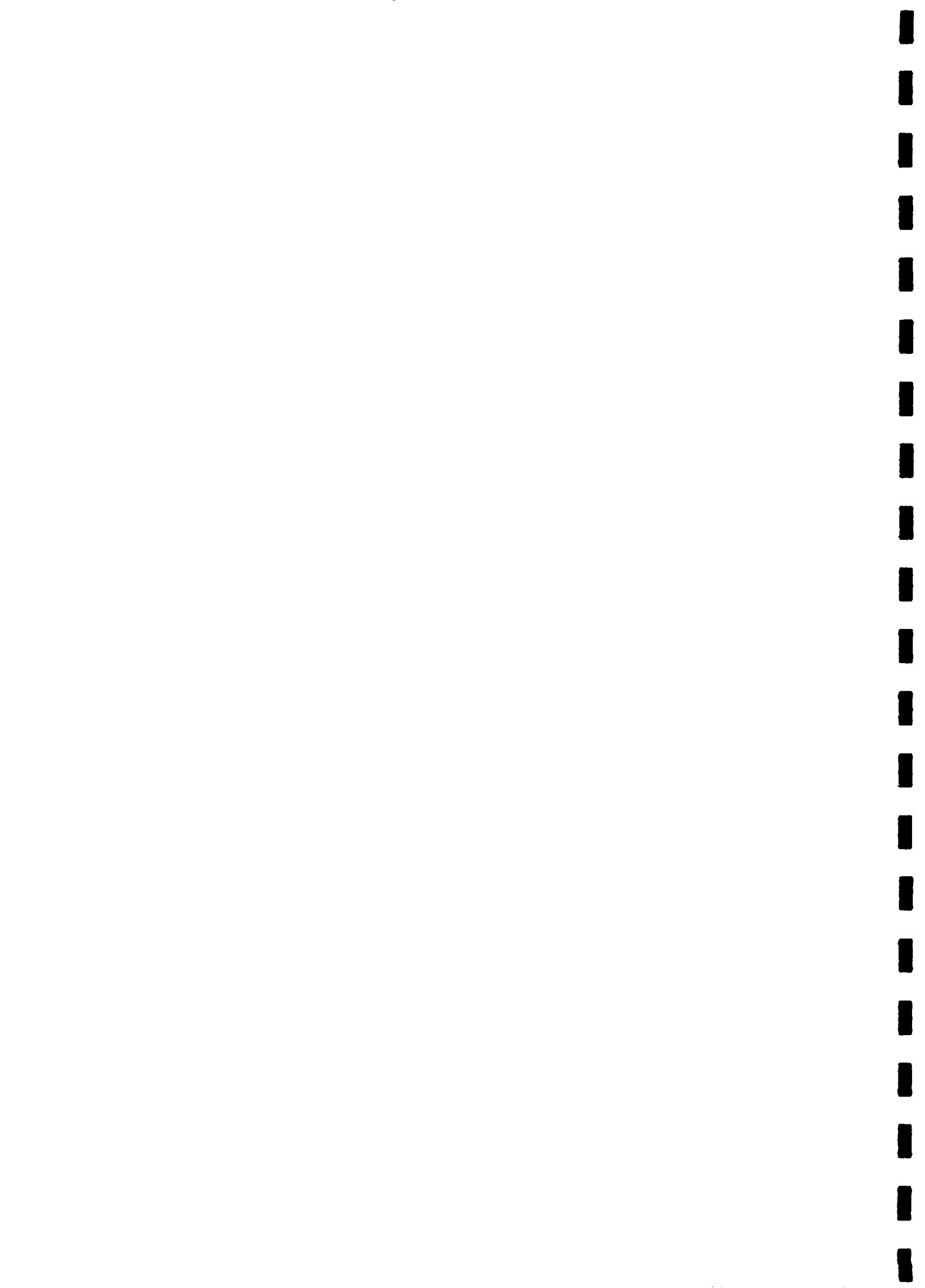
☞ reference [117].

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TURKMENISTAN



GENERAL INFORMATION

POPULATION	4 483.300 Capital Ashgabat: 544.700
POPULATION DENSITY	9,2 persons/km ²
SURFACE	488.100 km ²
ADMINISTRATION	Turkmenistan is divided into five administrative territorial bodies, or velayats, including 37 etraps and 12 free cities, or schacher: <ol style="list-style-type: none">1. Balkan2. Akhal3. Mary4. Lebap5. Dashkhovouz The urban-rural composition is 45-55 percent
TOPOGRAPHY	Three major regions: <ol style="list-style-type: none">1. highest summits: Kopet-Dag2. Kara Kum desert3. Caspian Sea 66.6% of the territory agriculturally used: 3 % arable land 96 % meadows and pastures
CLIMATE	arid climate Subtropical desert av. Temperature: North: Jan. -5°C; July 28°C South: Jan. 4°C; July 32°C Precipitation: North: 75-150 mm/a South: 400 mm/a
MEMBERSHIPS	CIS OSCE, UN UNCTAD, UNESCO UPO, WHO
POLITICAL BACKGROUND	National state, sovereign and independant government: Republic since 1992

☛ references [100], [101]

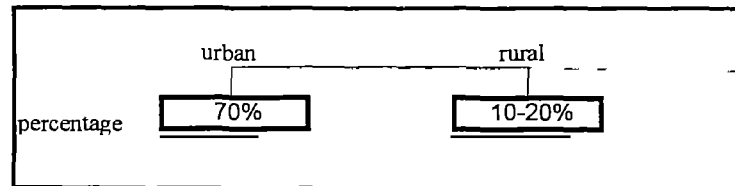




STATUS OF DRINKING WATER SUPPLY

FOR THE REGION OF DASHKHOVUZ (FORMERLY TASHAUZ)

POPULATION SUPPLIED WITH PIPED WATER



Indoor pipe connections available to 6 % of the urban and 1 % of rural families.

SOURCES OF DRINKING WATER PRODUCTION

- mainly groundwater
- Wells are second most important source (supplies 27 - 31% of households)
- Third most source are hand pumps (used by 20 - 21% of families)

ALTERNATIVES TO PIPED WATER

- hand - dug wells
- handpumps connected to shallow wells
- water from irrigation canals
- water from other sources delivered by tanker trucks

WATER SUPPLY

Water distribution is intermittent, with three two-hour periods of delivery scheduled per day

When water is available, it runs continually because taps have been broken or destroyed.

WATER TREATMENT

The only treatment is chlorination but the disinfection systems are usually inoperative due to broken equipment or lack of chlorine

TARIFF STRUCTURE

Drinking water is free of charge throughout the country

WATER QUALITY PROBLEMS

Bacteriological contamination of the drinking water
Salinity

☛ reference [102]



STATUS OF SEWERAGE / WASTE WATER TREATMENT

FOR THE REGION OF DASHKHOVUZ (FORMERLY TASHAUZ)

POPULATION CONNECTED TO THE SEWERAGE SYSTEM Only one sewerage and waste water system which is in Dashkhovuz city and serves only 60% of the population
Rest of the population use on site systems, usually pit latrines for sanitation

☛ reference [99], [102]

MAIN PROBLEMS

THE INSTITUTIONAL SETTING FOR WATER SUPPLY AND SANITATION HAS THE FOLLOWING WEAKNESSES:

- Allocation of responsibility for the sector among too many government agencies
- a wide range of responsibilities other than water and sanitation assigned to the principal agency charged with providing water supply
- lack of technical and management skills throughout the sector
- the absence of a coherent program for the effective operation and maintenance of water and sanitation facilities
- inadequate focus on sanitation
- shortage of funds for capital construction and operation and maintenance
- a national policy which provides water services free of charge
- High incidence of water and sanitation related communicable diseases including diarrheal diseases and hepatitis.

INVESTMENT PROJECT - OBJECTIVES

- **WATER SUPPLY IMPROVEMENTS**
Rehabilitation and expansion of piped water systems
physical improvements to the water system including well rehabilitation, pumping station upgrades, reservoir and other storage facility repairs, disinfection system installation or repairs, rehabilitation and expansion of the distribution network, and repair and installation of standpipes with automatic shut-off valves
- **SANITATION AND HEALTH**
Improvement of sanitation facilities and public health services and capabilities in water, sanitation and hygiene
- **INSTITUTIONAL STRENGTHENING**
Improve the effectiveness of the delivery of water and sanitation services and provide technical assistance, training and equipment the regional water and wastewater authority to be established under project implementation
- **PROJECT MANAGEMENT AND CONSTRUCTION SUPERVISION**

☛ reference [99], [102]



INTERNATIONAL COOPERATION

The World Bank

Aral Sea Basin Programm

EC-PHARE: Cooperation Fund pre-investment studies on the river Siret

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