EAP Task Force

NIS ENVIRONMENT STRATEGY
BACKGROUND PAPER

Pollution Prevention and Control:
IMPROVING THE MANAGEMENT OF MUNICIPAL WATER SUPPLY AND SANITATION INFRASTRUCTURE

Pollution Prevention and Control:[1]
IMPROVING THE MANAGEMENT OF MUNICIPAL WATER SUPPLY AND SANITATION INFRASTRUCTURE

Acknowledgements: this paper has been developed by the EAP Task Force/OECD in co-operation with the WHO for the Steering Group of Senior Officials elaborating the NIS Environment Strategy.

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[1] "Pollution Prevention and Control" covers two issues under the Strategy - urban air and municipal water supply and sanitation; while this paper covers municipal water supply and sanitation, the other issue is be covered by the paper *"Reducing Urban Air Pollution"* prepared by WHO.

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Overall objective: to improve the management of municipal water supply and sanitation infrastructure in order to ensure that good quality water and sanitation services are delivered to the population in a reliable, sustainable manner and at least cost. [2]

1. INTRODUCTION

1. This paper provides analytical support for the elaboration of one of the objectives included in the NIS Environment Strategy - improving the management of municipal water supply and sanitation infrastructure. The paper analyses key challenges for reforming the sector and lessons learned from the past experience. It proposes further actions needed to reach the objective and indicators to measure the progress towards the objective. Finally, the paper outlines the role of international co-operation in achieving the set objective.

Rationale

2. Poor water quality has been identified as a national priority problem in many environmental and health programmes in the NIS.[3] Low quality of drinking water supplied by public utilities presents a direct threat to human health. Insufficient treatment of wastewater poses risks to the stability of ecosystems, including transboundary ones. Significant amount of water is wasted due to weak demand management, inefficient infrastructure and leakage. The costs of maintaining the water supply and sanitation infrastructure are high, particularly for transition economies, while the scarce funds are not always spent effectively. Therefore urban water supply and sanitation is an important issue from a sustainable development perspective, including economic, social and environmental aspects.

3. Despite significant regional and sub-national variations in the availability and quality of water resources, and in the structure of water demand by sectors, centralised (municipal) water supply infrastructure and management are similar across the NIS. This sector remains among the most unreformed in the region, lagging behind general economic reforms. Slow sector reforms and shortfall of financing have already led to a crisis situation in many NIS; urgent measures are required to prevent further deterioration. Seeking common solutions to shared problems may be an effective approach given limited financial and human resources in the NIS and on the donor/IFI side.

Scope of the Paper

4. NIS Ministers of environment and of economy/finance met in Almaty, Kazakhstan, in October 2000 to discuss the current challenges, to identify the ways to reform the management of the sector and to boost investments. Ministers adopted the Guiding Principles for reform of the urban water supply and sanitation sector in the NIS. [4] This paper recommends actions to implement the Almaty Guiding Principles, including regulatory, economic and social reforms. It also proposes measures to safeguard public health and to protect the environment in the context of urban water supply and sanitation. While there are other important issues related to water supply and sanitation, such as rural water supply without centralised

[2] Guiding Principles for Reform of the Urban Water Supply and Sanitation Sector in the NIS, Almaty, Kazakhstan, 2000

[3] National Environmental Action Plans (NEAPs) and National Environmental Health Plans (NEHAPs) adopted by the NIS governments

[4] *"Water Management and Investment in the New Independent States"*, EAP Task Force/OECD, 2001

infrastructure, technological issues (e.g., sludge management), this paper will not cover them at the current stage of the Strategy development.

5. To ensure the sustainable nature of reforms in the urban water supply and sanitation sector, to promote protection of water resources and their rational use, reforms need to be implemented in a broader context of integrated water resource management. Water resource management issues, including river basin management, transboundary rivers and regional seas, will be covered in separate background papers.[5] This paper will aim to ensure that recommended actions are compatible with the objectives of integrated water resource management.

6. The paper will include measures to be implemented at national and local level in all NIS, and will not include measures, which are applicable only to individual countries and specific locations. Measures applicable for a group of countries or sub-regions will be proposed when appropriate.

International Context

7. The development of the NIS Environment Strategy is closely linked to several international and regional co-operation processes. The Strategy aims to strengthen the environmental pillar of sustainable development and was presented at the World Summit on Sustainable Development (WSSD) in Johannesburg in August-September 2002. Its objectives need to be situated in the context of the Millennium development goals. For the water sector the Millennium development goal[6] and WSSD commitment[7] is to reduce by half the number of people with no access to safe drinking water and sanitation by 2015. The paper will aim to develop recommendations for achieving this goal in the specific case of transition economies.

8. During the preparations for the WSSD, the European Commission has developed a Global Water Initiative, which includes a component for the NIS[8]. This Component is expected to support the implementation of the urban water sector reforms in the NIS. The Initiative has been launched at the WSSD[9], will be presented at the 3rd World Water Forum in Kyoto in March 2003[10], and adopted in Kiev in May 2003 at the Environment for Europe ministerial conference[11], as part of the NIS Environment Strategy. The Water Initiative will cover two main issues: drinking water supply and sanitation; integrated water resource management and regional seas. This paper will provide an input to the initiative on the subject of drinking water and sanitation.

[5] Background Paper *"Transboundary Rives and Integrated Water Resource Management"* will be developed by UN ECE in co-operation with Global Water Partnership (GWP); Background Paper "*Regional Seas"* will be prepared by UNEP/UNDP.

[6] UN Millennium Development Goals, http://www.un.org/millenniumgoals/index.html

[7] http://www.johannesburgsummit.org/html/whats_new/whatsnew.html

[8] NIS Component of the EU Global Water Initiative

[9] *"Launch of the European Union- States of Eastern Europe, Caucasus, and Central Asia Strategic Partnership on Water"*, Johannesburg Declaration, WSSD Johannesburg 3 September 2002

[10] http://www.worldwaterforum.org/

[11] http://www.unece.org/env/wgso/

2. CHALLENGES IN ACHIEVING THE OBJECTIVE IN THE NIS

Low Quality of Water Services, Public Health and Environmental Risks

9. Under central planning, water infrastructure was designed and built to meet ambitious economic goals and ever-growing water demand. As a result the NIS urban population has a relatively high level of connection to public water supply infrastructure compared to other counties and regions with similar level of income. The coverage by sanitation services is lower, particularly in rural areas, in Central Asia and the Caucasus. (See Table 1.)

10. At the same time, the physical connection to the infrastructure does not mean that consumers have access to safe potable water. Lack of financing for maintenance and investments resulted in unsatisfactory sanitary and technical conditions of water supply equipment and networks and the shortage of chemicals for purification. In some countries more than one-third of the population is using drinking water that does not meet hygiene standards, and in some sub-regions this proportion can exceed 50 per cent. Pathogenic microorganisms remain the most important danger to drinking water in the region, with gastro-intestinal diseases an important cause of child morbidity and mortality in some countries. Incidences of water related diseases, e.g. hepatitis A, are high in some NIS (e.g. Azerbaijan, Kazakhstan, Kyrgyz Republic, Turkmenistan and Uzbekistan); under-five mortality from diarrhoea is particularly high in Turkmenistan (See Annex 1).[12]

11. Control of waterborne diseases remains an important issue, but at present, there is no systematic reporting of water-related diseases in the European region, and available data collected at the national level may not be compatible. Surveillance mechanisms in the NIS are not systematic and homogeneous, and cannot perform an early warning function. Environment and health data capture and treatment quality is varied, sometimes even relying on manual transcription.[13]

12. In addition to the poor quality of drinking water, water supply is often interrupted in many localities across the NIS. In many cities water is provided according to a schedule. The number of accidents in infrastructure is growing. In Yerevan, for example, water is supplied only 2 to 6 hours a day.[14] The water pressure in the system is not always sufficient due to old pipes, households living at higher floors do not receive any water.

13. Despite unreliable water supply, the level of domestic water consumption is high. There are several reasons for this: water is charged based on consumption norms as the use of water meters is very rare, the price of water remains a relatively small item of households' expenses, there is little awareness of the real cost of water supply. In addition to missing economic incentives for water efficiency, the leakage in pipes is extremely high and is often accounted as consumption.

[12] Health for All Database, Regional Office for Europe, World Health Organization, http://www.euro.who.int/hfadb

[13] *"Environmental Performance Review of Kyrgyzstan"*, UN ECE, 2000

[14] *"Environmental Performance Review of Armenia"*, UN ECE, 2000

Table 1. Water Supply and Sanitation in the NIS

Country	Centralised water supply					Sanitation (%)		GDP per capita USD[1]	Population	
	% of population connected to the system		average daily consumption, litre per person	% of drinking water meeting quality standards	average uninterrupted supply, hours	population connected to sewerage	wastewater treated by WWTP		total population, mln[2]	% of urban and rural[3]
	urban	rural								
Western NIS										
Belarus [4]	94	53	194	67- 95 [5]	24	68	99	1,096	10.0	70/30
Moldova [6]	73	--	340	70	18	56	--	374	4.3	54/46
Russia[7]	84	--	250[8]	50 [9]	24	70	91	2,137	144.8	77/23
Ukraine [10]	83	26	319	94	17	53 [11]	97 [12]	781	49.1	68/32
Caucasus										
Armenia [13]	68	32	250 [14]	50 [15]	2-6 [16]	67-89	40-99	702	3.0	73/27
Azerbaijan[17]	81	17	270	70	4-6	65	40	696	8.1	53/47
Georgia [18]	95	72	530	70	6-12	60	80 [19]	581	5.4	60/40
Central Asia										
Kazakhst.[20]	93	26	220 [21]	74	--	--	--	1,505	14.8	60/40
Kyrgyz.[22]	--	70	--	--	--	--	--	307	4.8	48/52
Tadjikistan	--	--	--	--	--	--	--	161	6.5	33/67
Tukrmen. [23]	80	28	470 [24]	67	6-24	61[25]	--	642	5.5	46/54
Uzbekist. [26]	65	64	--	--	--	--	--	237	25.4	42/58

-- no data
1 and 2 source: Transition report, 2001 update, EBRD
3 source: Human Development Report 2000, United Nations
4 source: Novak /Ministry of Housing and Communal Services of Belarus, data for 2002
5 note: 67% of water complies with chemical standards and 95% with biological
6 source: National Association Moldova Apa Canal and EAP Task Force/OECD, 2002
7 source: Environmental Performance Review of the Russian Federation, OECD, 1999 and Sivaev/Institute of Urban Economics based on data for Krasnodar, Sarara and Perm regions, Norht-West Russia
8 note: 616 L in Moscow
9 source: Water Resources and Human Health in Europe, European Environment Agency and WHO, 1999
10 source: Statistical Bulletin for main indicators of water sector performance in Ukraine, 2001, State Committee for Statistics for Ukraine; National Water Sector Strategy and Actin Plan, COWI, 2002
11 note: 57% of urban population and 9% of rural dwellers area connected to sewerage
12 note: the capacity of existing facilities could provide mechanical and biological treatment for 97% of total wastewater; it is estimated that only 50% is treated in many locations, particularly smaller towns.
13 source: Aivazian/State Committee for water management of Armenia; note: data for Yerevan and 250 villages serviced by Yerevan and Armvodokanal
14 note: excluding water losses
15 note: according to GOST 2874-82 drinking water
16 note: data for Yerevan only; source: Environmental Performance Review of Armenia, UN ECE 2000
17 source: Mamedov/Ministry of Housing and Communal Policy of Azerbaijan
18 source: Kandelaki/Georgian Water Utility
19 note: mechanical treatment
20 source: Environmental Performance Review of Kazakhstan, UN ECE 2001
21 note: excluding water losses
22 source: Environmental Performance Review of Kyrgyzstan, UN ECE, 2000
23 source: Yanovitski/State Committee for sanitary water supply of population, Turkmenistan
24 note: excluding water losses, data for urban areas, consumption in rural areas 60 L
25 note: data for urban areas, connection in rural areas is 2%
26 source: Environmental Performance Review of Uzbekistan, UN ECE, 2001

14. Following the reduction of industrial and agricultural activities, wastewater treatment plants are becoming main polluters of water in the NIS. The state of the sanitation services and water treatment is not satisfactory. The level of household connection to sewerage infrastructure is rather low, especially outside major cities; when households are connected to the sanitation infrastructure, the actual treatment is not assured. The capacity of existing wastewater treatment plants is not sufficient, and their technical condition is often poor, many of them function below their capacity. In Moldova, for example, only 60% of wastewater capacity were used in 1993.[15] Often wastewater from industry, agriculture and households is discharged directly into rivers, e.g. in Kazakhstan about 22% of all wastewater is discharged without treatment.[16] There are numerous cases when decaying sewerage pipes cause secondary cross-contamination to drinking water.

15. It should be noted however that in many scarcely populated areas discharge of untreated water into the environment does not present an immediate threat to human health or environment. At the same time there are areas which require special protection efforts from the NIS and international community such as the Baltic Sea, the Danube and the Black Sea, the Aral Sea. Several international programmes support the initiatives of the NIS to protect such areas from water pollution, including pollution caused by adjoined municipal infrastructure (e.g. EU programme for the Danube and the Black Sea - DABLAS, GEF Black Sea, Danube Pollution Reduction and Caspian Environment Programmes, and many bilateral programmes).

Economic and Financial Crisis

16. High maintenance costs and low revenues of water utilities are the main causes for the financial crisis of the sector and its poor physical state. Following the economic decline and structural changes in economy, most NIS are facing serious over-capacity in the water sector with water intake and distribution networks much bigger than current demand. The costs of maintaining this extensive but inefficient infrastructure are too high. In some low-income NIS, e.g. Georgia, even maintaining the existing infrastructure may not be affordable for the society, to say nothing about possible extension to unconnected consumers, or improving wastewater treatment.[17]

17. While the costs of the sector are high, utilities do not have incentives for cost reduction and efficiency. "Cost-plus" tariffs, which allow the utility to receive a profit as a fixed percentage of costs, do not provide incentives to reduce costs. Besides, tariff setting is based on the historical costs of operation, which include frequent profit confiscation and reduction of the profit margin. Such bureaucratic interference into economic regulation of utilities further reduces incentives to operate efficiently and creates a foundation for corruption and illegal actions. Low tariffs for water and lack of water meters generate wrong incentives to consumers, and contribute to serious over consumption of water.

18. Revenues of the sector are rapidly declining as public budget subsidies to the water utilities have been phased out in all NIS (except for Turkmenistan). State support to the sector is currently represented by the obligation of the state to finance social programmes (compensation of discounted rates for households, housing subsidies and privileges), but these social mandates remain under-funded in many NIS.[18] While local authorities are responsible for the management of this sector, they often do not have

[15] *"Environmental Performance Review of Moldova"*, UN ECE, 1998

[16] *"Environmental Performance Review of Kazakhstan"*, UN ECE, 2001

[17] *"Finance Strategies for the Urban Water Sector in the NIS: Overview"*, EAP Task Force/OECD, 2001

[18] *"Current experience of social protection of water consumers in the NIS"*, A. Kucherenko and O. Romanyuk, Seminar paper, EAP Task Force/OECD, 2002

sufficient available funds, borrowing capacity and political will to provide financial assistance to water utilities.

19. Following the reduction of budget subsides, consumer payments became the main source of revenues for the water utilities. In most NIS there are different water tariffs for industrial users, households and budgetary organisations such as schools, hospitals and public administration. Industrial users often pay a much higher tariff than other groups of consumers, thus providing a cross-subsidy to these users. This approach is not economically justified and has a negative impact on industrial demand for the services of water utilities. Partly due to this factor, and following a decline in industrial water consumption, households are becoming the main clients for water utilities.

20. Over the last decade poverty has reached high levels in the NIS (see Table 2). Low level of income reduces the capacity of households to pay for water. Besides, water services have been traditionally seen as social services, and there is a political reluctance to significantly increase water prices. As a result, households continue to underpay the water services that they receive. Weak payment discipline and low rate of collection of water charges further reduce financial revenues of utilities.

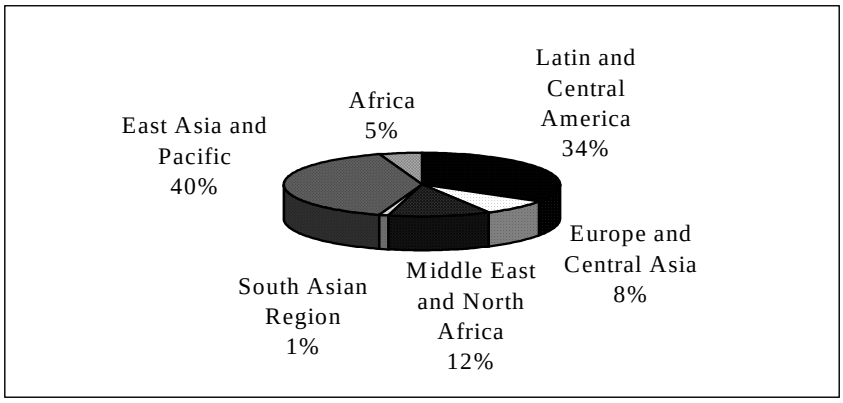
Table 2. Poverty in the NIS

	Population below the national poverty lines, %	Population below USD 2 per day, %
Western NIS		
Belarus	22.5	<2
Moldova	23.3	38.4
Russian Federation	30.9	25.1
Ukraine	31.7	31.0
Caucasus		
Armenia		34.0
Azerbaijan	68.1	9.6
Georgia	11.1	<2
Central Asia		
Kazakhstan	34.6	15.3
Kyrgyz Republic	51.0	
Tajikistan		
Turkmenistan		59.0
Uzbekistan		26.5

Source: World Development Report 2002, World Bank; note: data in 1990 PPP USD, refer to the most recent year available during 1996-99

21. As a result, utilities continue to accumulate debt, which threatens to spill over to the rest of economy. From mid 90s the high yield on central government debt has discouraged domestic banks from lending for water operations. The level of foreign direct investments into the sector is low. Out of 35 bln USD of FDI into the water sector during 1999-2000, only 2.8 bln, or 8% went to the Europe and Central Asian region, which include all countries from Central and Eastern Europe, Turkey and of the former Soviet Union. The share of the NIS is the total regional FDI is close to zero (see Figure 1).

Figure 1. **FDI in the water sector by regions, 1990-2000**



Source: World Bank

Unclear Institutional and Regulatory Framework

22. The management of urban water supply and sanitation requires co-operation of many branches of public authorities at the national and local levels, which presents a challenging task. Recent decentralisation of the sector management significantly reduced the responsibilities of central governments, but failed to clearly define the exact mandates and legal powers of various actors.[19]

23. In addition to the institutional problems, there are several regulatory obstacles preventing the improvement of the management of water utilities and their transformation into autonomous entities operating on a commercial basis. The lack of clear allocation of property rights and of decision-making responsibilities is among the key regulatory obstacles. In most NIS local authorities own the utilities, but the absence of a clear definition of property rights over assets and revenue streams creates obstacles for efficient management and financing of the sector. Many water utilities are independent legal entities on paper; in reality there is no clear separation between the utility and the municipality, and utilities continue to operate like structural units of local administrations.

24. Local authorities are also responsible for setting tariffs; rules and procedures for tariff setting remain poorly developed, unclear and unpredictable, leaving space for uncertainty and arbitrary decisions. Tariff decisions are often based on political rather than economic grounds. Institutional irregularities further complicate tariff regulation. In Kazakhstan, for example, city authorities are supposed to have full control over utilities, but financing and budgetary decisions stay with the regional administration.[20]

25. When the regulatory framework is not sufficiently clear, individual contracts between municipalities and utilities could in principle define obligations of both parties and performance targets for water utilities. The introduction of contractual relations between consumers and utilities has been very slow in the NIS. Similarly, there are no contracts between the consumer and service providers or producers, which makes conflict-resolution extremely difficult and causes public complaints. [21]

[19] *"Obstacles and Opportunities to Commercialising Urban Water Services in the NIS"*, ERM, 2000

[20] *"Obstacles and Opportunities to Commercialising Urban Water Services in the NIS"*, ERM, 2000

[21] *"Consumer Protection and Public Participation in the Reforms of the Urban Water Supply Sector in the NIS"*, A. Tsvetkova, Seminar paper, EAP Task Force/OECD, 2002

26. Utilities currently suffer from high rates of payment arrears due to massive non-payment mostly by households and publicly funded organisations. Non-payment can be as high as 2-3 yearly payment in some parts of the NIS; the lag between billing and payment can be up to 10 months.[22] The reason for this situation is that the legal tools at the disposal of utilities do not allow enforcing payment effectively.

27. Besides the institutional and regulatory obstacles, which have emerged during the transition period, there is a specific regulatory issue inherited from the central planning practices. Overly stringent drinking water quality and/or effluent standards are not realistic from the economic point of view and force most utilities out of compliance.[23] Ambitious consumption norms and construction requirements are not compatible with economic realities of transition period and dissuade investment coming to the sector. Exaggeratedly demanding and complex water quality monitoring programmes drain resources from water services that could have been used more effectively elsewhere.

3. ACTIONS TAKEN TO-DATE BY THE NIS TO ACHIEVE THE OBJECTIVE

28. As it has been stated earlier, reforms in the water supply and sanitation sector have been slow in the NIS. While National Environmental and Health Action Plans identified water as the key priority area for action, only recently, the higher echelons of governments have recognised that the backlog of problems accumulated in the sector over the last decade needs urgent attention.

Policy Formulation and Establishing Realistic Goals

29. In October 2000 NIS Minister of economy/finance and of environment met in Almaty, Kazakhstan, to identify the ways to reform the management of the sector and to boost investments. They adopted Guiding Principles for reform of the urban water supply and sanitation sector in the NIS.[24] The Guidelines identify the key elements of reforms, including the following:

- Decentralising responsibility for water service provision from national authorities to the local level.
- Reforming water utilities so that they have the autonomy, capacity and means to provide water and sanitation services efficiently and effectively, based on a realistic assessment of needs, and subject to strict supervision by public authorities.
- Engaging the public directly in the reform process.
- Establishing the sector on a financially sustainable basis so that funds are available to cover operation and maintenance costs and to make necessary investments, while addressing the needs of poor and vulnerable households.
- Creating incentives to substantially increase efficiency in the use of water by consumers and in the operation of water utilities.

[22] "*Performance Indicators, Water Utilities in Moldova"*, Project Documents, National Association Moldova Apa Canal and EAP Task Force/OECD, 2002

[23] "*Environmental Regulatory Reform in the NIS: the Case of the Water Sector"*, M. Ivanova, EAP Task Force/OECD, 2000

[24] Guiding Principles for Reform of the Urban Water Supply and Sanitation Sector in the NIS, Almaty, Kazakhstan, 2000

30. To provide support to the implementation of the Guiding Principles a Group of Senior Officials on Urban Water Sector Reforms in the NIS was established in 2001. It brings together NIS officials with the responsibility for urban water sector reform, donors/IFIs, private sector and civil society representatives. The Group is elaborating practical approaches for the implementation of the key elements of reforms, focusing on regulatory, economic and social issues. [25]

31. Recently, many NIS governments have declared water supply and sanitation among priorities in their reform programmes, and have started developing action plans for sector reforms. The government of the Russian Federation, for example, has identified housing and communal sector among priorities in its programme of reforms.[26] The Ukrainian government has adopted a programme for accelerating sector reforms, and has re-established a State Committee for communal services to strengthen political leadership in the sector.[27] It should be noted, however, that the functions of government agencies are still to be reformed by separating direct management and administration functions from and regulatory functions.

32. Several NIS (Georgia, Kazakhstan, two regions in Russia, Moldova, and currently Ukraine) have undertaken strategic financial analysis of the sector in order to identify realistic options for reforms. The Environmental Finance Strategy prepared for Georgia, for example, pointed out that raising user charges for water is the main measure urgently needed to ensure financial recovery of the sector. The Strategy further demonstrated that even maintaining current levels of service might be unaffordable for the country, financing decisions must be carefully prioritised and strategic reduction of services might be needed in some locations. [28]

33. Reflecting the high priority of the water supply and sanitation sector, particularly for public health, a number of countries have adhered to the UN ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and its Protocol on Water and Health (see Table 3). The Water and Health Protocol aims to contribute to the protection of human health and well being through improving water management and preventing, controlling and reducing water related diseases. Parties to the Protocol are responsible, *inter alia*, for establishing national and local targets for the extent of collective drinking water systems, standards of performance to be achieved and quality of drinking water supplied. Protocol obliges them to collect data and evaluate progress towards these targets, and make these data publicly available.[29]

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[25] Group of Senior Officials on the Reforms of the Urban Water Supply and Sanitation in the NIS, First Meeting, Kiev, Ukraine, Report, EAP Task Force/OECD, 2001

[26] L. Chernyshov, Russian Federation PPC Meeting, Rostov-on-Don, Russian Federation, PPC/EBRD, 2002

[27] G. Semchuk, Group of Senior Officials on the Reforms of the Urban Water Supply and Sanitation in the NIS, First Meeting, Kiev, Ukraine, EAP Task Force/OECD, 2001

[28] *"Finance Strategies for the Urban Water Sector in the NIS: Overview"*, EAP Task Force/OECD, 2001

[29] A. Pinter and R. Enderlein, *"International Instrument for the Prevention, Control, and Reduction of Water-related Diseases"*, pp 29 - 35 in R.A. Deininger, P. Literathy, and J. Bartram Eds., *"Security of Public Water Supplies"*, NATO Science Series 2. Environment Vol. 66, 2000

Table 3. Status of ratification of the Protocol on Water and Health of the UN ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes

Country	Convention		Protocol	
	Ratified	Signed	Ratified	Signed
Western NIS				
Belarus [1]	expected in 2002			
Republic of Moldova	04/01/1994			10/03/2000
Ukraine	08/11/1999			17/07/1999
Russian Federation	02/11/1993	18/03/1992	31/12/1999	17/06/1999
Caucasus				
Armenia				17/06/1999
Azerbaijan	03/08/2000			
Georgia				17/07/1999
Central Asia				
Kazakhstan	11/01/2001			
Kyrgyzstan				
Tajikistan				
Turkmenistan				
Uzbekistan				

Source: WHO; 1 source: Novak /Ministry of Housing and Communal Services of Belarus

Decentralisation and Reform of Management

34. Decentralisation of administrative responsibility for water supply and sanitation to the municipal level in the framework of broader administrative reform, has been the major step towards sector reform. The ownership of water utilities has been given to local authorities. Most water utilities were transferred into municipal enterprises; some of them were established as joint stock companies or corporations owned by the local authority or by the state and regional government. In some small towns and rural areas (Armenia, Kyrgyz Republic, Moldova), there have been attempts to implement community-based water systems.

35. While decentralisation is a positive development, which brings decision-making closer to local conditions, it has created certain difficulties. When the process was too rapid and not well managed, it resulted in fragmentation and the loss of control over sector operations and monitoring. For instance in Russia there are now more than 6,000 water utilities. In particular, it appeared that municipalities, especially medium and small towns, do not have sufficient institutional and management capacity as well as financial resources to manage and support the sector. In some cases the regional (oblast) level takes over some management and financing responsibilities from the city level, which presents a certain re-centralisation (e.g., in some regions of the Russian Federation).[30]

36. There have been few attempts to reform water utilities into autonomous and commercially run entities with independent decision-making and budget. There are only a few examples of introducing contractual relations between a municipality and a utility, often in the context of domestic private sector participation in a concession. These projects revealed a number of legal obstacles for further promotion of private sector participation, which need to be addressed at national and local levels (see Box 1). Participation of foreign private companies is very limited too with only one management contract in

[30] *"Tariff Regulation and Investments Attraction in Water Supply and Sanitation Sector"*, S. Sivaev, Seminar paper, EAP Task Force/OECD, 2002

operation in Yerevan; negotiations on a concession agreement in Almaty are advanced, but a final agreement is not yet reached; several projects are under preparation in the IFI pipelines.

Box 1. Reforming the water utility in the city of Syzran, Russian Federation

The city of Syzran in Samara region (Russia) has decided to invite a private company to manage its water utility. The primary goal of this decision was to attract additional investments into water infrastructure development. Local industrial companies interested in the project have created a private company to take over the management of the water utility. Municipal property was transfer into a trust managed by a newly established private company in the form of a concession-type contract. It was expected that the private investment would be refinanced through increased efficiency of the company and the reforming tariff policy.

The implementation of the project gave positive results overall. Introduction of contractual relations significantly improved relations between the municipality and the utility. The involvement of the private company facilitated additional investments.

At the same time the implementation of the project revealed certain weaknesses of the project design and identified more general regulatory obstacles. The contract between the municipality and the private company did not specify from the outset the process for tariff setting, which led to conflicts. Besides, the Russian law stipulates that when the management of municipal infrastructure is transferred from the municipality to a private entity, the regulatory responsibilities must be transferred from the municipality to the regional administration. This complicated the agreements concerning tariff policy.

Source: S. Sivaev, EAP Task Force/OECD

37. Several NIS have undertaken steps to develop concession law to facilitate private sector involvement into utility sectors. The concession law has been adopted in Ukraine; in Russia its adoption by the Duma is expected at the end of 2002. Russian draft law, for example, provides state guarantees for legal protection of the concessionaire and legal guidance on concession contract, including proprietary rights, terms and conditions of concession agreements.[31] While concession laws can help to improve the framework conditions for private sector participation, alone they are not sufficient to attract more private finance into water services.

38. Information about the performance of the sector is another important condition for improving the accountability and management of utilities and for attracting the private sector. Rapid decentralisation and restructuring of the management led to a disruption in information gathering. Not only local authorities and potential investors, but also water utilities themselves often do not have a clear picture about various aspects of utility operation. In order to provide decision-makers with information about utility performance several NIS have launched pilot projects to gather utility performance indicators.[32] Performance indicators compiled by an individual utility can be very useful for establishing its performance targets and monitoring trends. They are most useful for comparing utility performance at regional and national level, and, when integrated, can be used for evaluating water sector performance. (See Box 2.)

[31] Draft Federal Law *"On Concession Agreements with Russian and Foreign Investors"*, Russian Federation, 2001

[32] Pilot projects on performance indicators in Russia, Moldova and Ukraine, EAP Task Force/OECD

Box 2. Utility performance indicators

In 2002 National Association of water utilities of Moldova "Moldova Apa Canal" has launched a study of water utilities to improve access to information and compare utility performance. The study covered 42 water supply and sanitation utilities for the period between 1996 and 2000. Using the World Bank toolkit the study collected information on the key indicators of utility performance:

1. *coverage (both water and wastewater)*
2. *water production and consumption*
3. *unaccounted-for-water*
4. *metering of consumption*
5. *network performance*
6. *cost and staffing*
7. *quality of service*
8. *billing and collection*
9. *financial performance (working ratio, debt service ratio)*
10. *capital investment*
11. *environmental indicators*
12. *cost and resource efficiency*

The results of the study revealed several trends, e.g., 48% reduction of water consumption per capita and a growing number of metered connections; high level of deterioration of infrastructure and low levels of investments (except for municipalities receiving foreign loans). Small towns presented a particularly difficult situation: higher production costs of utilities, low recovery of costs by tariffs and more interruptions in water supply.

These results could help focus national and local reforms and identify priorities for actions and investments. They are used for the selection of the utilities for the World Bank Water Supply and Sanitation Project.

Similar studies are carried out in the Russian Federation (about 100 utilities in Rostov, Leningrad, Perm and Samara oblasts and Krasnodar Krai), and Ukraine (about 75 utilities in Kharkov, Nikolayev and Zakarpatskaya oblasts).

Source: EAP Task Force/OECD, World Bank, Benchmarking of Water and Sanitation Utilities

39. In some countries steps were taken towards reforming overly strict water standards. Ukraine, for example, has declared its intention to harmonise its legislation with that of the European Union. New rules were introduced which set out less stringent requirements for the quality of discharged waters and bring them closer to the EU legislation (the new norm for BOD and suspended solids for waste water is now 15 g per litre). [33] At the same time the costs of bringing the performance of the water sector into compliance with EU requirements are going to be very high and the governments need to be aware of the financial needs to implement their political statements. (See Box 3.)

Box 3. Costs of compliance with EU requirements for wastewater treatment in Ukraine

There is little information about the costs of compliance with EU requirements in the NIS. A study was conducted for the Khmelnitska oblast in Ukraine (population of 1,442,000) to estimate the capital investment needs to comply with the EU Directive 91/271 concerning urban wastewater treatment plants.

The costs of upgrading and construction of waste water treatment plants were estimated at 88-141 million EURO, depending on assumptions concerning the rate of nitrogen removal in existing plants. The total investment needs including the extension and development of the sewerage systems is 189,8 million EURO.

The total investment to finance the compliance with the EU Directive in this Oblast of Ukraine is estimated around 132EURO per capita.

Source: "Costs of Ukraine's Prospective Approximation, with Environmental Regulations of the European Union", Krakow University of Economics, 1999

[33] G. Semchuk, Group of Senior Officials on the Reforms of the Urban Water Supply and Sanitation in the NIS, First Meeting, Kiev, September 2001, Report, EAP Task Force/OECD

Cost Recovery Objectives and Tariff Reform

40. Next to decentralisation and restructuring of the management, phasing out state subsidies and adoption of full cost recovery objectives marked an important phase of reforms. Full cost recovery is seen as a medium term objective; many governments have developed schedules for achieving full cost recovery from households, based sometimes on overly optimistic projections of economic and social development. The schedules are often revised based on actual achievements. It is important to note that cost recovery definition in the NIS usually includes recovery of current production costs incurred by utilities, and does not cover investments needed for rehabilitation and development of the sector.

41. The cost recovery trend in the Caucasus has been slow, in Armenia and Georgia for example the ratio is about 15-20% recovery by domestic consumers. Russia, Ukraine and Moldova are steadily increasing the cost recovery ratio, households are covering around 60 % of actual costs, in some regions the level is close to full cost recovery. Kazakhstan and Uzbekistan are reporting 100% cost recovery from households, but this figure should be treated with caution, as it might be based on an incomplete definition of full cost recovery or inaccurate data (see Table 4). Turkmenistan is the only country in the region where water is supplied at no cost to the population.

42. NIS governments made serious efforts to phase out cross-subsidies provided by industry to household users. Many local and regional governments responsible for tariff setting aim to reduce the degree of cross-subsidisation (e.g., Ukraine and Russia)[34]. In Kazakhstan cross-subsidies were banned by the Governmental Decree[35], and one uniform tariff has been established for all types of users; Uzbekistan formally introduced similar rules. While elimination of cross-subsidies is a positive development, its implementation may face serious difficulties when introduced too rapidly and may require a transition period to prevent a tariff shock to the formerly subsidised consumer groups.

43. Tariff regulation remains ill defined across the NIS, but several countries and regions are experimenting with various approaches and models. In the Russian Federation water supply and sanitation is not defined by law as a local natural monopoly; to improve the regulation of this sector, energy boards have been charged with water tariff regulation in several regions. These boards have a better capacity for the task than local authorities and may have better information needed for tariff related decisions, e.g. related to other utility prices and regulation. [36] In Kazakhstan the water sector is legally recognised as a local monopoly, and tariff regulation is entrusted to the regional departments of the antimonopoly committee.[37] At this stage it is too early to assess the effectiveness of these arrangements.

44. Most NIS continue to use the so-called "cost-plus" tariff. While the performance of "cost-plus" tariffs can be improved to some degree through better information and procedures, it will remain an obstacle for cost reduction if a clear corporate status of utilities is not ensured through major reforms of legal and institutional framework. Ukraine has recently made first steps towards reforming its water tariff

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[34] *"Current Experience of Social Protection of Water Consumers in the NIS"*, A. Kucherenko and O. Romanyuk, *"Affordability of Urban Water Services in the NIS"*, A. Martuserivch, Seminar papers, EAP Task Force/OECD, 2002

[35] Since 1998, price discrimination by water utilities is prohibited in Kazakhstan in accordance with the Governmental Decrees Nos. 437 and 587 dated 29th May 1997.

[36] P. Kruchkova, Consumer Protection and Public Participation in the Reforms of the Urban Water Supply and Sanitation in the NIS**,** Expert Workshop**,** 4-5 March 2002, Paris, EAP Task Force/OECD

[37] A. Amrin, Consumer Protection and Public Participation in the Reforms of the Urban Water Supply and Sanitation in the NIS**,** Expert Workshop**,** 4-5 March 2002, Paris, EAP Task Force/OECD

formula. According to the new legislation[38] local authorities can choose between "cost-plus" and "price cap" formula. "Price cap" is considered a more efficient approach, which provides incentives to water utilities to reduce costs and to increase their efficiency, but its implementation requires an effective regulatory framework, including possibly an independent regulator, strong technical capacity and a reasonable number of regulated entities. The new Ukrainian Law provides a legal basis for the use of the "price cap", but its implementation will depend upon the capacity and willingness of local authorities to introduce this new measure.

45. More developed tariff structures currently used in OECD countries can provide stronger efficiency signals to consumers and utilities.[39] Such tariffs as life-line (consisting of connection fee and flat rate for consumed volume of water) and progressive tariffs (volumetric tariff increasing with consumption) have not been applied in the NIS yet, one of the reasons being that their use requires water meters. While most industrial consumers, individual houses and some newly built apartment blocks are equipped with water meters, individual apartment meters are rare; even when meters are installed they are not always used for billing purposes.

Table 4. Comparative Analysis of Tariff Policies in Water Supply Sector in NIS

Country	Cost recovery level from households	Cross-subsidy ratio	Full cost recovery target date	Level of local tariff regulation	Tariff regulation formula	Formal tariff regulation procedure
Western NIS						
Belarus [1]	31,4	48,6	2005 (80%)[2]	national, local	cost +	no
Moldova	50	yes	2003	local	costs +	no
Russia	60	4	2003	local	costs +	no
Ukraine[3]	73[4]	yes	2005	local	cost + or price cap	no
Caucasus						
Armenia	20	5	2005	local	costs +	no
Azerbaijan [5]	20-57	5[6]	2005	local	cost +	no
Georgia	15	yes	2005	local	costs +	no
Central Asia						
Kazakhstan	100	no	1998	regional	costs +	no
Kyrghyzstan	48	yes	2005 (75%)[2]	local	costs +	no
Tadjikistan						
Turkmenistan	0	no	no	national	costs +	no
Uzbekistan	100	no	2001	regional	costs +	no

Source: S.Sivaev, EAP Task Force/OECD
1source: Novak/ Ministry of Statistics of Belarus
2 note: Belarus established a target to recover 80% of costs from households, Kyrgyz Republic has a target of 75% recovery.
3 source: National Strategy for the Development of the Water Sector of Ukraine; Ukraine National Water Sector Strategy and Action Plan, COWI, 2002
4 note: the figure represents the collection rate; 9 out of 27 regions of Ukraine have reached 100% cost recovery by households; Ukraine National Water Sector Strategy and Action Plan, COWI, 2002
5 source: State Committee for Water Sector under the Government of Republic of Armenia/Aivazian
6 note: data for Yerevan only

[38] *"Law of Ukraine on Drinking Water and Water Supply"*, 2001; *"Rules and Procedures for Setting Tariffs for Centralised Water Supply and Sanitation Services"*, 2001

[39] *"The Price of Water, Trends in OECD Countries"*, OECD, 1999

46. Moldova represents an exception from this general situation. Following significant price increases households started to install water meters to protect themselves from high charges. Currently 85% of water sold by utilities is billed according to metering. Despite numerous practical and legal difficulties caused by this voluntary campaign a spectacular decline of water consumption has been registered in Moldova from 457 to 221 litres per person per day.[40] Water metering and price increase were key factors, together with discontinuation of hot water provision in many cities. It should be noted that water consumption has declined in other NIS as well (e.g. in Armenia domestic water use decreased by 30% since 1999[41]), but this trend is related to economic decline rather than to more efficient use of resources and "de-coupling" of environmental and economic indicators.

47. Despite efforts to reform tariffs, reduce water consumption and recover costs, the financial situation of the sector remains critical. The accumulated communal sector debt reached USD 10 billion in Russia, and is close to USD 4 billion in Ukraine. [42] It should be noted that usually the debt is not shown in the accounting books, as bad debt is not written off. If these debts were to be written off main creditors to the water sector, such as electricity utilities, could be pushed to the brink of bankruptcy, and inflationary pressures could be felt in the monetary domain. In the Russian Federation some attempts to restructure the debt were made: according to the new regulations the energy debt can be restructured for 5 years under the condition that all current obligations and fees are paid. Effective introduction of International Standards for Accounting and Auditing, formally adopted by many NIS, may help address the debt problem.

Targeting Subsidies to Protect the Poor and Promoting Public Participation

48. Increasing water prices is a prerequisite for financial stability of the sector and can give strong incentives for saving water, but there is a lot of political resistance to this measure, especially in national and local parliaments. Water services are seen as social, and cost recovering prices are believed to be unaffordable due to the widespread poverty. Due to growing inequality in income distribution specific low-income and poor groups of consumers have emerged (e.g. pensioners, single parent families, etc.) who will not be able to pay their water bill without significant cuts of other expenses.[43] In some cities households have to pay especially high water bills to finance the reform of the utility; in Chisinau, for instance, water presents 14% of households' expenses as tariffs need to repay the EBRD loan, compared to the average 1-2% in the UK.[44]

49. While low incomes and poverty objectively reduce economic affordability of water, few studies which have been undertaken to measure water affordability in the NIS suggest that most consumers would be willing to pay a higher price for a water service of higher quality, in terms of the quality of the water supplies and the reliability of the service. [45] There can be several reasons for such findings: the poor usually suffer the most from poor water services, and the population with higher level of income may not face serious difficulties to pay a higher water price. Therefore there is scope for tariff adjustment. At the

[40] *"Performance indicators, Water Utilities in Moldova"*, Seminar paper, EAP Task Force/OECD, 2002

[41] *"Environmental Performance Review of Armenia"*, UN ECE, 2000

[42] *"Tariff Regulation and Investments Attraction in Water Supply and Sanitation Sector"*, S. Sivaev, Seminar paper, EAP Task Force/OECD, 2002; G. Semchuk, State Committee for Housing and Communal Policy of Ukraine

[43] *"Affordability of Urban water Services in the NIS"*, A. Martusevich, Seminar paper, EAP Task Force/OECD, 2002

[44] *"Performance Indicators, Water Utilities in Moldova"*, Project Documents, National Association Moldova Apa Canal and EAP Task Force/OECD, 2002

[45] *"Water Prices in CEE and CIS Countries, A Toolkit for Assessing Willingness to Pay, Affordability and Political Acceptability"*, DANCEE, 2002; http://www.ebrd.com/country/index.htm

same time water is a basic human need, and governments are responsible for ensuring access to water to satisfy basic needs for all[46], it is their duty to provide social assistance to the poor and vulnerable groups for whom the adjusted tariffs are not affordable.

50. There are various methods of providing support to those groups of the population who cannot afford to pay the full price for water. [47] Several NIS (Moldova, Kazakhstan, Russia and Ukraine) have introduced targeted housing subsidy programmes.[48] In Ukraine, for example, under such a programme central government is compensating households expenditures for housing and communal services, including water, if the total bill is higher than 25% of the total income. Housing subsidies help to channel support to the poor and to ensure financial returns to the utilities. It should be noted however that they fail to provide incentive to the consumers to save water.

51. Most NIS have inherited from the Soviet times a system of privileges. Under this system certain categories of citizens (e.g. police, judges and war veterans) are granted discounted rates or receive certain services for free. Unlike the housing subsidy programmes, privileges are not provided to the poor, and thus economically cannot be justified. But there is a political resistance to remove them, even if budgets are not able to finance such programmes, moving this social burden to water utilities. So far only in Moldova privileges were eliminated.

52. In addition to measures which provide economic support to the low-income consumers, special efforts promoting public participation are required to ensure overall public acceptance of reforms. All NIS have joined the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters.[49] While this Convention is not directly targeting the water sector, some NIS governments are making first efforts to apply its principles to the sector decision-making. The new Law of Ukraine on Drinking Water, for example, provides a legal basis for public hearings on the key issues of sector reforms.[50] The antimonopoly committee in Kazakhstan also organises public hearings in cities and towns where tariff reforms could raise public concerns.[51] Similarly, many water utilities in the NIS are making efforts to improve their relations with consumers; they create consumer relations units and launch telephone hot lines to address the most urgent information needs.

[46] Agenda 21

[47] *"Social Protection in Urban Water Sector in OECD Countries"*, H. Smets, Seminar paper, EAP Task Force/OECD, 2002

[48] *"Current Experience of Social Protection of Water Consumers in the NIS"*, A. Kucherenko and O. Romanyk, Seminar paper, EAP Task Force/OECD, 2002

[49] *"Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters"*, http://www.unece.org/env/pp/

[50] *"Law of Ukraine on Drinking Water and Water Supply "*, 2001; *"Consumer Protection and Public Participation in the Reforms of the Urban Water Supply Sector"*, A. Tsvetkova, Seminar paper, EAP Task Force/OECD, 2002

[51] *"Obstacles and Opportunities to Commercialising Urban Water Services in the NIS"*, ERM, 2000

4. FURTHER ACTIONS NEEDED TO REACH THE OBJECTIVE AND INDICATORS OF PROGRESS

Summary of Proposed Actions and Indicators

Actions	Indicators and Checklist
Improve institutional and regulatory framework	⇒ *Introduction of legal provisions for an independent and commercially based regulation for water tariff setting*
Ensure financial viability of utilities	⇒ *Cost recovery rate (the share of tariffs in operation and maintenance costs for a representative sample of utilities)* ⇒ *Rate of investments into the sector per capita (including domestic investments, FDI and ODA)*
Ensure access of the poor to water services	⇒ *Share of water bill in household expenses* ⇒ *Share of the poor or other groups eligible for social assistance receiving water or related assistance*
Safeguard public health	⇒ *Access to safe drinking water (as a percentage of population with continuous access to adequate amount of safe drinking water in the home)* ⇒ *Outbreaks of water-borne diseases*
Protect the environment	⇒ *Waste water treatment coverage (as a percentage of population served by a waste water facility of at least biological (secondary) grade* ⇒ *Water consumption per capita*

Detailed Description of Actions and Indicators

53. Management of the urban water sector requires co-operation between many actors: national authorities (parliaments, presidential administrations, ministries of economy, finance, regional development, public works, environment, health, social affairs and others); local authorities (city and regional parliaments and executive offices, local branches of sector ministries); water utilities and non-governmental sector (consumers, NGOs and consumer organisations, private business). Whenever possible specific actors responsible for the implementation of a recommended action are identified; a more specific allocation of responsibilities will need to be decided by individual countries.

54. Reforms of the water sector require a significant period of time for their actual implementation. Therefore a combination of long-term planning and short and medium term actions is crucial. The time perspective for the strategy is 10 years, while recommended actions include short and medium term (up to 3 and 5 years) to long term actions (10 years).

55. Proposed actions can be monitored by performance indicators and checklists. While indicators aim to measure progress in quantitative terms, checklists are more qualitative and identify critical actions that need to be taken in order to achieve objectives. They will help NIS governments to determine trends and monitor progress toward objectives. They will also provide a means for potential donors to measure

the effectiveness of their financial and technical assistance. The NIS should commit to providing valid and comparable data to support these indicators and checklists.

Actions to Improve Institutional and Regulatory Framework

56. National authorities should introduce a clear delineation of responsibilities between government agencies that share responsibility for water sector management, particularly in the area of sector development and planning. They should establish an effective framework to regulate water utilities and to prevent the abuse of monopoly power. The specific form of a regulatory framework depends upon the degree of decentralisation in each country, administrative culture and the reform efforts. When developing their regulatory frameworks, NIS governments can learn from international experience, including a centralised approach with a national regulatory body (e.g. the UK), or regulation by contract in a decentralised model (e.g. France, Germany).

57. National and local authorities should clarify property rights between various parties involved; they should require the development and updating of an inventory of assets, connections and consumers for each utility as a legal basis for determining property boundaries and responsibilities of utilities and municipalities vital for management and investments decisions. In a long-term perspective, governments could consider the introduction of property registers.

58. The current mixture of functions, where local authorities own, regulate, finance and control water utilities needs to be rationalised, and water utilities established as autonomous, commercially-run entities. Central and local governments need to shift from direct control and administration to the transparent regulation of utilities based on incentives. This entails reducing political interference in management decisions of the utility. They should promote the introduction of performance contracts between local authorities and utilities through development of model contracts, which identify measurable performance targets for the utility, as well as the cash flows between parties.

59. A system for monitoring utility performance should be developed in order to introduce benchmarking and stimulate cost efficiency. Central governments may choose to assume the responsibility for information collection, e.g. for performance benchmarking, and provide expertise on demand to the local level. Utilities would need to ensure that information about their performance is gathered and provided to the municipalities or central information systems on a regular basis. Utility performance indicators based on the World Bank toolkit and developed on a pilot basis in several NIS could be used as guidance.

60. Central governments should review and reform standards concerning drinking water and effluent water quality, construction and consumption norms in the light of environmental, social and public health objectives, and their economic feasibility. International guidance documents such as the WHO Drinking Water Quality Guidelines[52] or the EU Directives 98/83/EC (drinking water), 91/271/EEC (urban wastewater), and 96/61/EC (pollution prevention), recently superseded by the EU Water Framework Directive, could serve as a benchmark. Western NIS in particular may decide to approximate their standards with EU norms.

61. Measures to improve conditions for the involvement of the domestic and foreign private sector into urban water services should be made at the national level, including strengthening tariff-setting procedures, clarifying the property rights regime and strengthening tools for enforcing payment discipline.

[52] WHO, Drinking Water Quality Guidelines, Vol. 1-3, World Health Organization, 1993

Central governments should adopt concession laws, which clearly define the rights and responsibilities of agents granted concessions to operate utilities.

62. NIS governments and other parties should build capacity in central governments, municipalities and utilities to implement sector reforms. In particular they should strengthen legal, economic and social skills at the national level, and strengthen capacity to develop investment plans at the municipal level through the introduction of long term financial planning. Excessive fragmentation of utilities should be avoided by grouping them in larger units to ensure sufficient human and financing capacity

Checklist of actions

⇒ Legal provisions for a clear and effective regulatory framework, including independent regulation of commercially-based tariff setting
⇒ Legal provisions for the development of inventory of assets of water utilities
⇒ Preparation and promotion of model contract between municipalities and utilities based on performance targets
⇒ Introduction of a requirement for water utilities to collect information on specific performance parameters and to regularly provide this information to the regulatory bodies
⇒ Implementation of reforms of environmental and technological standards for the water sector using WHO guidelines and/or EU directives as a benchmark
⇒ Development of legal provisions for the promotion of private sector participation
⇒ Development and implementation of training programmes for sector management staff

Actions to Ensure Financial Viability of Utilities

63. Local governments should determine a realistic level of services that can be provided to consumers based on the assessment of demand and availability of funds. Environment finance strategies could be used for this task. In the poorest parts of the NIS, municipal governments need to assess the financial sustainability of actual levels of water services, taking into account low ability to pay by the households. In some cases less costly ways of water provision and less ambitious sector goals may need to be identified.

64. Governments should reform tariff-setting rules to provide incentives to increase efficiency by water utilities and to prevent excessive political interference. They should develop tariffs, which reflect costs, including indexation to external price changes, and promote water conservation. Central governments could introduce a standard format and effective rules for tariff proposals by utilities.

65. Governments should continue efforts to achieve cost recovery through water tariffs from all groups of consumers. Full cost recovery definition should include the following costs: operating activities; interest expenses resulting from enterprise's financing activities; costs associated with utility's investments activities (through annual revenues in excess of depreciation) and opportunity cost of the capital. The short-term goal should be to cover operation and maintenance costs.

66. At the national and local level, cross-subsidies from industrial consumers to household and budgetary consumers, should be phased out gradually, taking into account the financial viability of the utility and affordability of new tariffs for consumers.

67. Billing procedures should be improved to ensure that charges are based on actual consumption. Governments should evaluate costs and benefits of individual water metering programmes; improve the legal framework for the wider introduction of water meters, e.g. develop regulation on water metering standard, operation and billing. Where metering is not practical, they should revise water consumption

norms to better reflect actual consumption, e.g. using data on the floor space, number of rooms and other criteria.

68. Governments should evaluate the debt of water and communal sector and develop a plan for its reduction through restructuring, forgiveness or compensation from municipal or national budgets. Measures for debt reduction should be designed with special attention as they may entail high costs.

69. Central governments should promote investments into the sector from local, national and foreign sources. They should remove obstacles to raising capital at the local level and improve creditworthiness of municipalities. Further, they should identify national priorities for financing water supply and sanitation sector from the state budget and develop mechanisms for financial transfers from the national level to water utilities.

Checklist of actions

⇒ Introduction of regulation which would protect tariffs from arbitrary revision and guarantee their stability for at least a one year period

⇒ Introduction of a system to estimate water sector debt and development of a plan to deal with the debt

Indicators to measure progress

⇒ Cost recovery rate (the share of tariffs in operation and maintenance costs for a representative samples of utilities)

⇒ Rate of investments into the sector per capita (including domestic investments, FDI and ODA

⇒ Ratio of cross-subsidies between industry and households

⇒ Share of bills based on actual consumption (for a representative sample)

Actions to Ensure Access of the Poor to Water Services

70. National and local governments should analyse the affordability of water prices at local and national level, on a regular basis and prior to major price changes. The results should be disseminated to the policy-makers and the public. They should consider establishing a national and/or local affordability target or benchmark for water expenses, e.g. a maximum share of household expenditure spent for water and sanitation, and regularly measure the gap between the target and actual levels. Willingness and ability to pay methodologies should support this analysis.

71. Central governments should implement measures to support access to water for the poor, giving the preference to targeted income subsidies, such as subsidies for water and/or communal expenses. Where such programmes exist, their targeting should be improved and incentives for water conservation should be strengthened. Where subsidies are provided for water and communal services together, separating water in a separate programme could be considered, taking into account possible high costs of the measure.

72. Central authorities should remove privileges, which provide discounted or free water to specific groups of consumers based on their social status, and not on means-testing, thus not targeting the poor. To build support to this measure, NIS governments should demonstrate how the targeted subsidies would compensate those poor consumers who are currently benefiting from privileges, and how this will benefit the society.

73. Local authorities and utilities should assist the poor to pay for water though direct contacts with indebted households. Possible approaches include restructuring their debts, ensuring regular billing and establishing easy payment procedures.

74. The introduction of social tariffs, such as life-line and progressive tariffs, could be tested. Greater use of such tariffs together with metering in individual apartments may help households to reduce their water consumption and expenses. Social tariffs can be used for limited groups of poor consumers identified by the local governments, and financed from the local budget or through a cross-subsidy between richer and poorer, if the level of cross-subsidisation is not significant and does not create market distortions.

75. To improve consumer satisfaction, responsibilities of providers, producers and consumers of water services, should be clarified; contracts should be introduced when feasible. Softer approaches of conflict resolution, such as administrative solutions and direct negotiations, should be promoted. To improve relations with consumers and to raise their awareness of conservation and related issues, utilities should establish consumer relations units and "hot lines", and provide bills containing information on consumption levels, full costs of services and subsidies.

76. Central governments should develop a legal framework to apply the Aarhus Convention on public information, participation and access to justice in the urban water sector. They should adopt a provision for public hearings on water related issues. Local governments should promote public participation, particularly on such issues as municipal development plans, level of service, tariff reform and private sector involvement.

Checklist for actions

⇒ A clear requirement for tariff-setting authority to assess the affordability of water tariffs, including benchmarks of affordability
⇒ Phasing out water privileges which do not target the poor
⇒ Introduction of measures to deal with the indebtedness of households
⇒ Arrangements to assess consumer satisfaction through consumer complaints or consumer surveys
⇒ Legal provisions to promote public participation and public hearings in the water sector

Indicators to measure progress

⇒ Share of water bill in household expenses
⇒ Share of the poor or other groups eligible for social assistance receiving water or related assistance

Actions to Safeguard Public Health

77. At the local level, public health risks should be reduced using alternative ways of providing safe drinking water and by ensuring appropriate measures in cases of water infrastructure accidents and intermittent water supply, e.g. provision of water tankers and informing the public about possible methods of additional water treatment.

78. Central and local governments should improve surveillance systems for microbial water related diseases to act as an early warning system to alert against the possibility of outbreaks[53] and to guide investments to areas of highest risk. They should improve surveillance systems for and chemical safety of drinking water focusing the limited resources only on those chemicals to which consumers have a recognised higher risk of exposure by implementing appropriate selective monitoring programmes[54].

79. Local governments and utilities should improve the surveillance of the integrity of the distribution network. Target surveillance activities to the areas where the population is at greatest risk from

[53] G. Howard, *Water supply surveillance – a reference manual*, WEDC Watermark, 2002

[54] T. Thompson, *Chemical Safety of Drinking Water*, WHO SEARO 2002

water related diseases. They could consider applying computer modelling such as Geographic Information System (GIS) for this purpose.

80. Central governments should develop water safety plans, using WHO guidelines under preparation. They should develop programmes to ensure access to adequate water services in line with the Millennium Development Goal, reaffirmed by the Johannesburg Summit, of reducing by half the number of population without access to safe drinking water. They could consider establishing a legal definition for minimum allocation of safe water to meet basic human needs, e.g. using the WHO definition of 40 litre of water per person per day.

81. Where countries are not yet committed, efforts should be made to sign and ratify the Protocol on Water and Health of the UN ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

Checklist of actions

⇒ Ratification of the Water and Health Protocol of the UN ECE Convention on te Protection and Use of Transboundary Watercourses and International Lakes
⇒ Adoption of WHO Drinking Water Quality Guidelines (DWQG) in national legislation[55]
⇒ Establishing effective surveillance systems for distribution networks

Indicators to measure progress[56]

⇒ Share of population with access to safe drinking water, as per WHO indicator WatSan_Ex1
⇒ Access to adequate sanitation, as per WHO indicators WatSan_Ex2
⇒ Outbreak of water-related diseases, as per WHO indicators WatSan_E1
⇒ Diarrhoea morbidity in children, as per WHO indicator WatSan_E2
⇒ Exceedance of WHO Drinking water guidelines for microbiological parameters, as per WHO indicator WatSan_S2[57]
⇒ Exceedance of WHO Drinking water quality guidelines for chemical parameters, as per WHO indicators WatSan_S3[58]

Actions to Protect the Environment

82. National authorities should establish a framework for managing the competitive uses of water at the national and regional levels, i.e. through integrating municipal water systems into coherent programmes for water resources management within river basins, to ensure a balanced approach to water allocation for nature, direct human use, agriculture, and industry.

[55] M. von Sperling and B. Fattal, *"Implementation of Guidelines: some practical aspects"* in: L. Fewtrell and J Bartram, *"Water Quality: Guidelines, Standards, and Health: Assessment of risk and risk management for water-related infectious diseases"*, WHO, 2001 pp 361-377

[56] All WHO-indicators related to water and sanitation are grouped in the following document: M. Kádár, *Environmental Health Indicators for Water and Sanitation*, 02 Nov 2001 reference number 5026344 published by the European Centre for Environment and Health, Bonn Office. The document exists in English and Russian.

[57] This parameter covers both *E. coli and faecal streptococci*. Its mathematical expression includes the total number of samples processed. A separate reporting of the parameter as a proportion of positive samples AND of the number of samples processed would be an indicator on a strengthened (or weakening) surveillance system.

[58] According to WHO findings: NO^-_3, Fe, As, Mn, F, I, Sr, and revised to take into account local priorities

83. In a long-term perspective national and local governments and utilities should ensure that population has access to effective sanitation services. This will envisage increasing wastewater collection and treatment, and the quality of wastewater treatment equipment.

84. National and local governments, water utilities and water service providers, public and consumer associations should promote measures for water demand management aiming to increase the efficiency of water use, reduce water consumption and water loses.

Checklist of actions

⇒ Introduction of integrated water resource management at national or regional level

Indicators to measure progress

⇒ Waste water treatment coverage, as per WHO indicators WatSan_P1

⇒ Level of public expenditure on waste water treatment[59]

⇒ Water consumption per capita

5. THE ROLE OF INTERNATIONAL CO-OPERATION IN REACHING THE OBJECTIVE

Lessons Learned and the New Context for Co-operation

85. Over the last ten years bilateral donors have implemented numerous technical assistance programmes in the NIS; IFIs have carried out studies aiming at extending loans and promoting commercial investments. While the results of these projects were generally mixed, and often the outputs were lower than initial expectations, they generated valuable reform experience and provided lessons for the future.

86. In the past co-operation programmes often had an excessive focus on the technical aspects of water supply and sanitation, leading to the realisation of sophisticated infrastructure, the benefits of which did not always reach final consumer. Such projects helped resolve localised problems but failed to support fundamental reforms of the sector. Water related programmes shared many weaknesses with environmental assistance programmes, such as lack of donor co-ordination, weak ownership on the side of the NIS, lack of replication effect of demonstration projects (for more a more detailed assessment of assistance programmes see the Background Paper on Environmental Legislation, Policies and Institutions[60]).

87. The recent EU Global Water Initiative and its NIS Component, launched at the Johannesburg WSSD in September 2002, aims to support the implementation of the urban water sector reforms in the NIS. It could provide a timely opportunity for the NIS and the EU to set specific measurable goals for their co-operation in the future.[61] National Strategies for Sustainable Development (NSSDs) and Poverty Reduction Strategy Plans (PRSPs) could provide another opportunity to better integrate water sector into

[59] *"OECD Environmental Indicators; Towards Sustainable Development", OECD,2001*

[60] Background Paper *"Environmental Legislation, Policies and Institutions"*, EAP Task Force/OECD

[61] *"Launch of the European Union- States of Eastern Europe, Caucasus, and Central Asia Strategic Partnership on Water"*, Johannesburg Declaration, WSSD Johannesburg, 3 September 2002

these broader frameworks and related donor and IFI assistance programmes. This Background Paper aims to provide recommendations as to the most effective forms for international co-operation in the water sector.

Regional Co-operation and Networks

88. Following the collapse of the Soviet Union, cross-country contacts in the NIS have been abruptly severed; access to information and exchange of experience has become extremely difficult. Recently several sub-regional co-operation activities were launched, including "Ecwatech" annual water fairs hosted by Russia[62], biannual water conferences organised by Ukrainian government, and various ad hoc events. These events provide a much-needed access to information on technological solutions proposed by private companies and researchers, and deal with a broad range of reform issues in selected countries and sub-regions.

89. Recently established Group of Senior Officials for Urban Water Sector Reforms in the NIS[63] brings together policy-makers responsible for the urban water sector in the NIS, donors and IFIs, experts from the transition and OECD countries, representatives of the private sector and the public. The group focuses on policy issues and has a specific goal to develop solutions for the key elements of sector reforms identified in Almaty Guiding Principles, including regulatory reform, economic and financial issues and social protection. It operates through annual meetings of senior officials, expert level seminars on specific issues and demonstration projects in selected countries.

90. The Group has started its activities in 2001, and there is an expressed need to continue and further develop its activities. Following the Conclusions of the Almaty Ministerial Conference, a next major review of water sector reforms in the NIS is planned for 2005. In the period up to this review and beyond, the Group could focus on the following issues:

<u>Legal and institutional reforms</u>

1. Development of a model performance contract between utilities and municipalities, and its implementation through demonstration projects in specific countries and localities.
2. Assessment of alternative regulatory frameworks for water sector management, and implementation their reforms in selected NIS through demonstration projects.
3. Supporting the development and implementation of information systems for sector planning in the NIS, through extending performance indicators collection to all NIS and by institutionalising indicator collection through demonstration projects.
4. Promoting conditions for effective private sector participation, through disseminating experience of CEE and OECD countries, and through the analysis of domestic and foreign private sector participation in the NIS.
5. Facilitating reforms of environmental and technological standards through developing reform options and implementing them through country specific demonstration projects.

<u>Economic and financial reforms</u>

1. Development of in-country demonstration projects aiming to reform tariff-setting systems, based on the forthcoming Guidelines for Tariff Reform in the NIS.
2. Extending the development of Finance Strategies for urban water supply and sanitation sector to cover all NIS, and supporting the development of national project pipelines for the sector.

[62] www.sibico.com/ecwatech/index.htm

[63] www.oecd.org/env/eap

3. Promoting capital investment flows into the sector through data collection, analysis of obstacles and development of recommendations, with a particular focus at middle size cities. Promoting improved creditworthiness and capital investments at the municipal level.

Social and consumer protection

1. Development of in-country demonstration projects aiming to reform social and consumer protection, based on the forthcoming Guidelines for Consumer Protection and Public Participation in the Urban Water Sector in the NIS.
2. Promoting public participation in sector reforms through information dissemination and public debate of reform options through internet and other forms.

91. World Health Organisation is supporting European regional activities on water and health, NIS health and water authorities could benefit from a more active participation. In particular, technical support can be promoted through the WHO EURO network of collaborating centres in water and sanitation. WHO guidelines for evidence-based surveillance and early-warning systems for water-related diseases; guidelines for drinking water and recreational water quality could help NIS focus their regulatory reforms and strengthen health monitoring systems. WHO is also developing appropriate training materials, which might be very useful for the NIS region.[64]

92. Regional activities on Integrated Water Resource Management supported by Global Water Partnership network and UN ECE could also provide a useful resource to support water sector reforms in the NIS. (See Background Paper on "Transboundary Rivers and Integrated Water Resource Management" developed by UN ECE in co-operation with Global Water Partnership (GWP); and Background Paper "Regional Seas" will be prepared by UNEP/UNDP for more details.)

Bilateral Programmes

93. In addition to international and regional programmes, bilateral donors and IFIs could provide an important support to national reform efforts. Their programmes and demonstration projects in specific countries are the most powerful forms of donor assistance. As the NIS water authorities, local governments, utilities and consumers have the key role in implementing the reforms, and donor assistance can only have an additional function, donor agencies and IFIs need to provide more support to establish an enabling environment for successful reforms of the water sector.

94. In particular, bilateral programmes and demonstration projects should focus on the implementation of the key elements of reform, and in this way they could provide a catalytic effect for in-country reform process. Demonstration projects should aim to implement the recommendations elaborated which have already been developed through analytical efforts and policy dialogue in the region, such as the recommendations by the Group of Senior Officials for the Reform of the Urban Water Sector in the NIS.

95. While donor agencies and their counterparts would develop their bilateral projects to support reforms of the urban water sector in specific country conditions, the projects need to follow key principles for effective bilateral assistance, which are summarised below.

Ownership by the recipient

The key to success of an assistance programme lies in the willingness and ability of the recipient to use the results of the project to carry out reforms. While donors' interests and priorities are important for the

[64] WHO, The European Health Report, WHO Regional Publications, European Series, No.97, 2002, page 97-98

design of projects, assistance programmes primarily should focus on the specific needs of the country and take into account local conditions.

Focusing technical assistance on institution and capacity building

Donor agencies and IFIs need to provide more support for strengthening regulatory and management capacity in the water sector at all levels of government and in utilities. These efforts are perceived as crucial in helping to establish an enabling environment for successful reforms of the water sector. Long-term resident advisors, wider use of local experts, training programmes to build national and local expertise and development of training materials in local languages are among most effective capacity building tools.

Focusing financing for infrastructure projects on outputs and real results

One tool in achieving more effective and focused donor support is to link Official Development Assistance (ODA) to the achievement of certain output objectives (e.g. number of new customers connected) in line with the millennium development goals, rather than paying for the completion of inputs (e.g. a number of km of pipes constructed).

Focusing assistance to reduce social and environmental impacts of the transition period

While ODA will only provide a minor share of the overall finance needed for the NIS water sector, it can have an important role in helping to reduce the social, environmental and economic impacts in the transition period by helping to avoid abrupt tariff increases. Donor finance should therefore focus on measures that help to make the reforms socially and economically acceptable, including targeted subsidies for water sanitation infrastructure in environmental hot spots and other priority areas.

Facilitation of private investment into the sector

ODA alone will not be able to provide all the needed assistance to the water sector in the NIS. Private investors can bring technical and managerial know-how as well as finance to the water sector. However, investors are currently reluctant about investing into the NIS water sector, which is partly due to relatively high political and macro-economic risks that investors perceive in the region. Donors can help to lower these obstacles by providing financial guarantees, or helping to develop risk mitigation schemes together with NIS authorities.

Co-ordination of donor and IFI efforts and dissemination of results

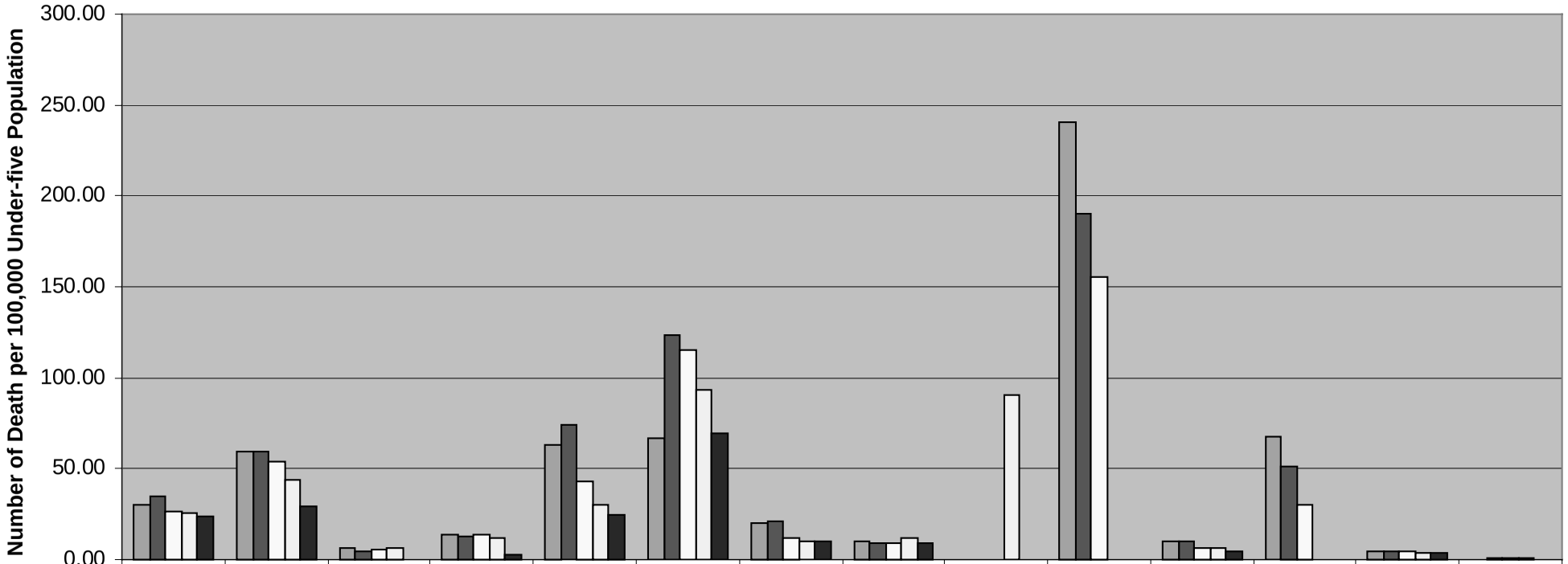
Donor and IFI activities in the water sector in the NIS, both bilateral and multilateral, need to be co-ordinated better, especially at the country level. Country donor meetings with the leading role of national water authorities could b a useful form for such co-ordination. Donor programmes should aim to ensure the replication effect of their demonstration project, ensure dissemination of results across national borders and those of donor and IFI programmes. Besides, water sector projects need to be better integrated into broader frameworks such as National Strategies for Sustainable Development (NSSDs) and Poverty Reduction Strategy Plans (PRSPs).

ANNEX 1. WATER RELATED DISEASES IN THE NIS, CEE AND EU[65]

Table 1. Under-five Mortality Rate from Diarrhoeal Diseases
Table 2. Viral Hepatitis A Incidence Rate
Table 3. Malaria Incidence Rate
Table 4. Infant Mortality Rate

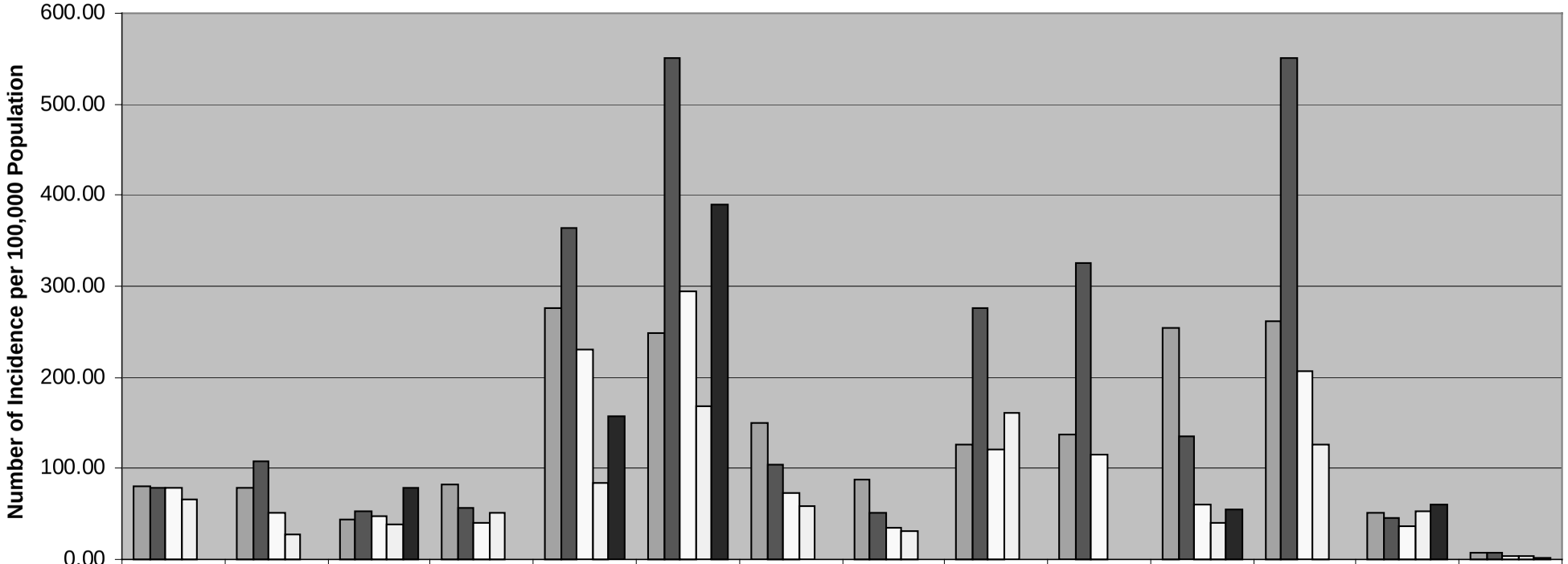
[65] Health for All Database, Regional Office for Europe, World Health Organisation

Under-five Mortality Rate of Diarrhoeal Diseases



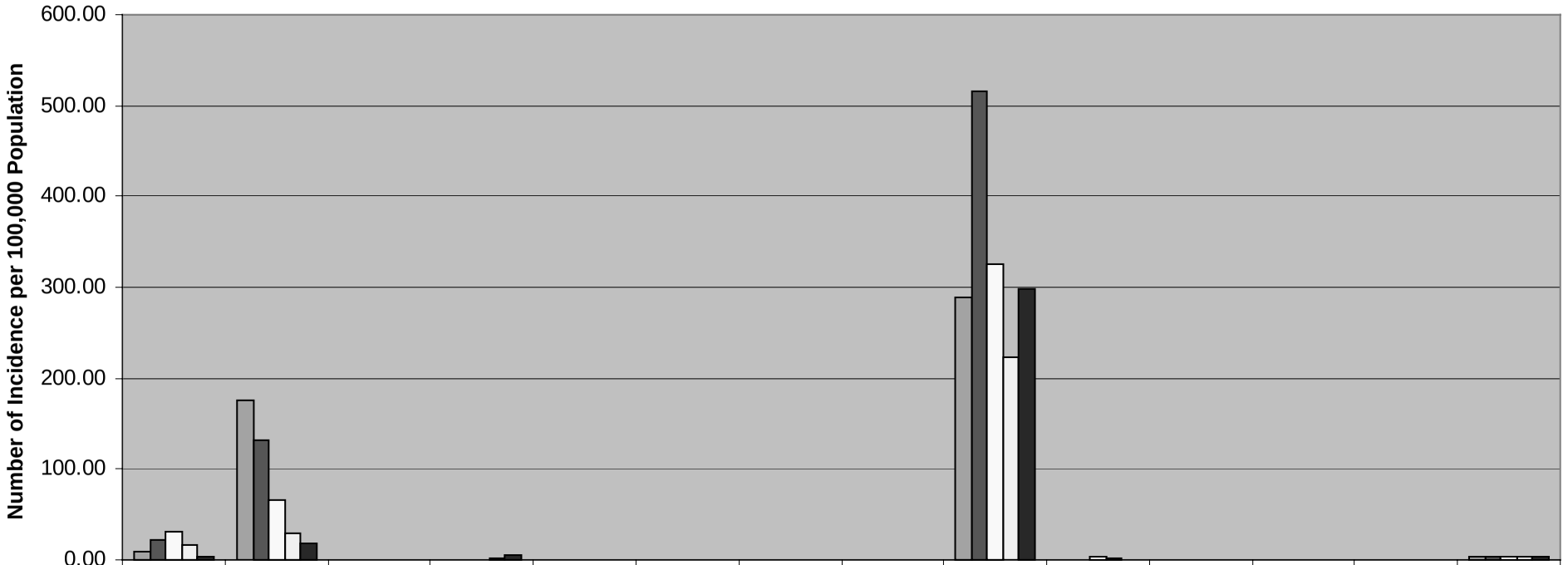
	ARM	AZE	BLR	GEO	KAZ	KGZ	MDA	RUS	TJK	TKM	UKR	UZB	CEE average	EU average
1996	30.55	59.45	6.26	13.99	63.42	66.97	19.72	10.19		240.30	9.85	68.13	4.84	0.42
1997	34.40	59.49	4.65	13.06	74.03	123.32	20.61	9.47		190.31	9.93	51.09	4.48	0.47
1998	26.64	53.68	5.51	14.02	42.82	115.31	12.03	8.94		155.82	6.62	29.91	4.49	0.56
1999	25.83	43.98	6.28	11.96	30.39	93.67	10.47	11.64	90.59		6.33		3.34	0.52
2000	23.60	29.50		2.63	24.39	69.81	9.92	9.34			4.36		3.75	

Viral Hepatitis A Incidence Rate



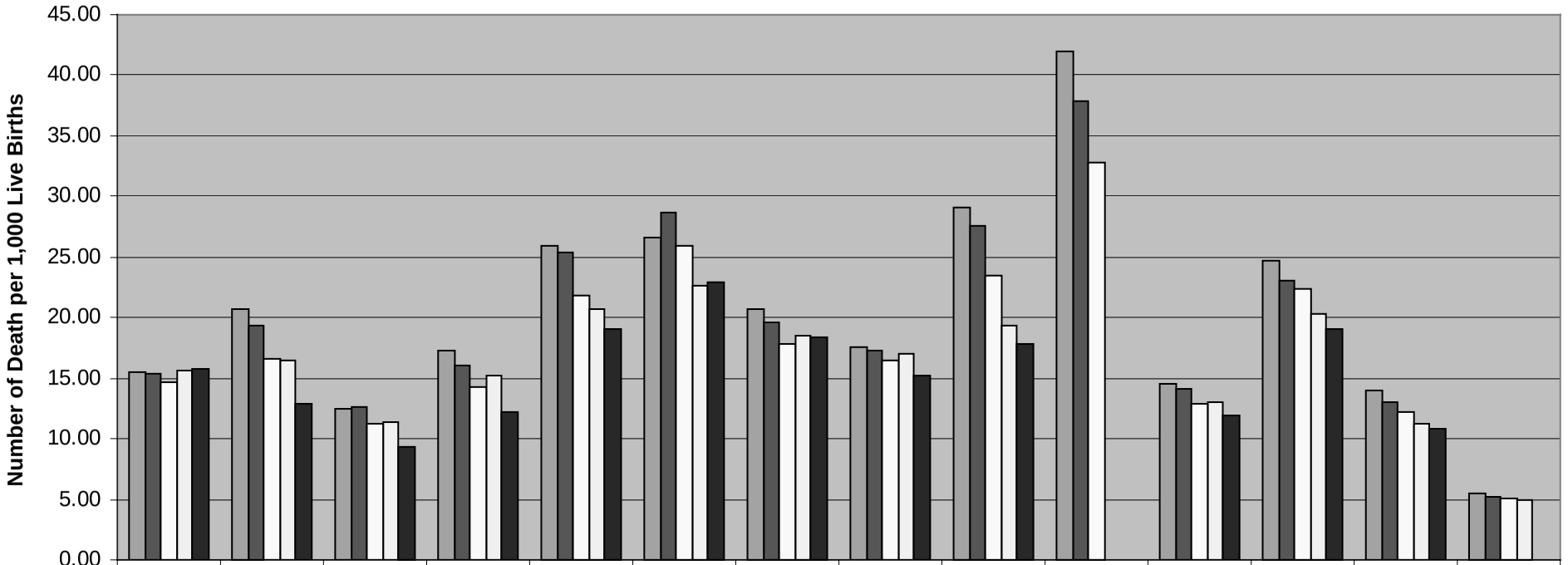
	ARM	AZE	BLR	GEO	KAZ	KGZ	MDA	RUS	TJK	TKM	UKR	UZB	CEE average	EU average
1996	80.45	78.95	43.01	82.47	276.11	248.75	149.58	88.11	126.25	137.04	254.12	260.91	51.13	6.56
1997	77.89	107.10	52.38	57.19	364.50	550.84	103.90	50.71	276.53	325.04	134.49	551.34	45.82	7.28
1998	78.61	50.88	46.99	40.27	231.17	294.49	73.20	34.19	120.08	115.30	60.71	206.00	37.11	4.36
1999	66.49	27.28	38.50	51.02	83.85	168.89	58.23	30.51	160.80		39.74	126.23	52.69	3.37
2000			79.56		156.47	388.93					54.65		59.55	2.37

Malaria Incidence Rate



	ARM	AZE	BLR	GEO	KAZ	KGZ	MDA	RUS	TJK	TKM	UKR	UZB	CEE average	EU average
1996	9.20	175.41	0.08	0.09	0.55	0.55	0.19	0.41	288.88	0.31	0.32	0.22	0.15	2.83
1997	22.21	131.51	0.11	0.02	0.65	0.28	0.09	0.55	516.17	0.30	0.31	0.22	0.15	2.87
1998	30.46	65.40	0.13	0.39	0.58	0.24	0.09	0.74	325.85	2.91	0.28	0.31	0.16	3.05
1999	16.21	29.00	0.12	1.25	0.36	0.10	0.02	0.54	222.51	1.12	0.19	0.35	0.15	3.36
2000	3.71	18.96		5.50	0.25	0.25	0.66	0.55	298.08	0.54		0.51	0.12	3.66

Infant Mortality Rate



	ARM	AZE	BLR	GEO	KAZ	KGZ	MDA	RUS	TJK	TKM	UKR	UZB	CEE average	EU average
1996	15.48	20.77	12.53	17.25	25.93	26.58	20.65	17.50	29.10	42.01	14.51	24.70	14.04	5.48
1997	15.41	19.40	12.56	16.06	25.34	28.61	19.63	17.25	27.60	37.91	14.19	23.08	12.97	5.21
1998	14.73	16.62	11.22	14.32	21.78	25.99	17.86	16.44	23.40	32.78	12.94	22.32	12.27	5.05
1999	15.67	16.53	11.42	15.25	20.72	22.68	18.54	17.07	19.40		13.01	20.29	11.26	4.94
2000	15.75	12.83	9.31	12.21	19.08	22.98	18.44	15.22	17.80		11.96	19.13	10.90	

ANNEX 2. LIST OF ATTACHMENTS

EU Global Water Initiative: NIS Component
WHO Environmental Health Indicators for Water and Sanitation