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Transboundary Water Resources in the Former Soviet Union: Between Conflict and Cooperation

ABSTRACT

The demise of the Soviet Union created new international boundaries and, as a result, a host of legal problems related to the management and utilization of natural resources divided by these boundaries. This article surveys the most important transboundary water systems, shared by the former Soviet republics, and examines an emerging legal framework for cooperation, multilateral, regional and bilateral, between them. Although the current approach to the use of transboundary water resources is still influenced by the practices established in the former Soviet Union, there is a tendency towards greater reliance upon international law in addressing water-related issues of common concern.

I. INTRODUCTION

The disintegration of the Soviet Union and the emergence of newly independent states (NIS) gave rise to a number of political, economic and legal problems, exceptional in scale and complexity. While only a few of these countries are truly politically and economically independent, the relationships between the NIS are governed by international law, and it is for international lawyers to assess the possible political and legal repercussions of the latest developments.

The current situation within the territory of the former Soviet Union (FSU) is unique. With the demise of the USSR, a number of environmental and natural resource problems, formerly dealt with as internal concerns on a national level, have acquired international dimensions. As a consequence, there is an increasing potential for transfrontier controversies and conflicts.[1]

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1. *See, e.g.*, S.L. Udall & R.G. Varady, *Environmental Conflict and the World's New International Borders*, 7 CIRT TRANSBOUNDARY RESOURCES REPORT 5-6 (1993).

This observation is particularly relevant with respect to the water resources shared by the NIS. The problems that these states now confront are unprecedented in scope, though similar to those found in other parts of the world. In essence, there are two major issues: 1) the effective management of transboundary water resources, and 2) the prevention and resolution of possible international disputes over their utilization.

The purpose of this paper is to address the recent developments concerning transboundary water resources in the FSU. The first part will survey the most important transboundary water systems in the NIS. The second part will provide an overview of the political and environmental factors that might affect interstate relations in this area. Finally, the paper will outline an emerging legal framework for cooperation between the NIS with regard to their shared water resources.

II. TRANSBOUNDARY WATER RESOURCES: GEOGRAPHY AND POLITICS

There are several major water systems both in the European and Asian parts of the FSU which are now divided by state boundaries and thus, must be treated as international.

A. Transboundary Water Systems of the European Part of the Former Soviet Union

Beginning from the western part of the FSU, there is a system of rivers and lakes, the largest of which is Lake Choudskoye (Peipus). It occupies about 3,600 km2 and straddles the border between Russia and Estonia. Lake Choudskoye connects with the Baltic Sea (Finnish Gulf) through the Narva River, which forms a part of the Russian-Estonian border.

The Neman River, 937 km long and draining an area of some 98,000 km2, rises in Byelorussia, flows west and then north through Lithuania and finally turns west, forming the border between Lithuania and the Kaliningrad oblast' (region) of Russia. South of Klaipeda, the Neman River reaches the Kuriches Haff of the Baltic Sea. Part of the river is navigable.[2]

The Western Dvina River is 1,020 km long and drains an area of about 88,000 km2. From its source in Lake Dvinets on Russian territory, it flows through Russia, Byelorussia, turns northwest through Latvia and discharges into the Gulf of Riga of the Baltic Sea. The Western Dvina River has been an important water route since early times and at present

2. *See* 8 THE NEW ENCYCLOPAEDIA BRITANNICA 591 (15th ed.) [hereinafter NEB].

is used for navigation and energy production.[3]

Further south is the Dnepr (Dnieper) River, the third longest river in Europe (2,285 km). It rises in the Valdai Hills, about 200 km west of Moscow. The Dnepr flows south and west, first through Russian (480 km), then through Byelorussian (590 km) and Ukrainian territories. It finally empties into the Black Sea. The Dnepr's major tributaries—the Sozh, Pripyat, Desna, Seim, and Vorskla—cross the Russian-Ukrainian, Russian-Byelorussian or Byelorussian-Ukrainian borders, forming a vast international drainage basin of 505,000 km2 (more than two times larger than that of the Rhine). The average annual flow of the river at its mouth is about 1,670 m^3 per second. The Dnepr is a principal water artery of the southwestern part of the FSU. It is navigable for about 2,000 km. The river basin, with its 300 hydroelectric plants and a number of canals and large reservoirs, is a major source of electricity and water supply for the densely populated industrial regions of Ukraine as well as for irrigation of the southern Ukraine. Pollution in the river is significant. Chernobyl is located near the Kiev reservoir, at the confluence of the Pripyat and the Dnepr.[4]

The Dnestr (Dniester) River, which is 1,350 km long, rises in the Carpathian Mountains and flows in a southwestern direction to the Black Sea. Its basin (72,000 km2) is shared by Ukraine and Moldova. The Dnestr River is an important water route of Moldova and is used for navigation, energy production, timber floating and irrigation.[5]

The Severskiy Donets River, a main tributary of the southern Russian Don River, is 1,050 km long and drains a basin of 100,000 km2. It rises in the Central Russian Uplands and flows southeast through eastern Ukraine before returning to Russian territory and joining the Don. The river crosses the northern part of the Donets Basin industrial region, which uses much of its water. Severe pollution, as a consequence of extensive water utilization by industry and population, affects not only the Donets itself but also the lower part of the Don River which flows through Russian territory and enters the Sea of Azov.[6]

B. Transboundary Water Systems of the Caucasus

In the Caucasus there are two main transboundary rivers: the Kura and Araks. Their basins spread over three Transcaucasian republics: Georgia, Armenia and Azerbaijan. The Kura is 1,515 km long and drains

3. *Id.* v. 12, at 601.

4. *Id.* v. 18, at 846-47; *id.* v. 4, at 141; *see also* 5 BROCKHAUS ENZYKLOPÄDIE 570 (1988) [hereinafter BROCKHAUS].

5. *See* 4 NEB, *supra* note 2, at 141.

6. *Id.* at 174.

an area of 188,000 km2. It rises in Turkey and flows eastward, crossing Georgia and Azerbaijan. The Kura and its tributaries have a number of dams and barrages for hydroelectric and irrigation purposes. Part of the river is navigable.[7] The Araks (Aras) is about 1,000 km long. It rises in Turkey and creates the borders between Turkey and Armenia, between Armenia and Iran and finally, between Iran and Azerbaijan. It joins the Kura river on the territory of Azerbaijan, 120 km from its mouth on the Caspian Sea, forming the Kura-Araks Delta.[8]

Also worth noting is the Samur River, which rises in the Caucasus mountains on Russian territory and flows into the Caspian Sea. Its lower course forms a part of the border between Russia and Azerbaijan. Having a network of canals, the Samur is used extensively for irrigation. The major Samur-Apsheron canal brings water to the Apsheron peninsula in Azerbaijan.

C. *The Caspian Sea Basin*

The rivers flowing from the Caucasus, as well as the Volga and Ural rivers, which flow from the north, belong to the catchment area of the Caspian Sea which is the world's largest "inland sea".[9] It presently occupies an area of more than 370,000 km2 and stretches over nearly 1,200 km from north to south with an average width of about 320 km. More than eighty percent of the Caspian Sea shoreline is shared by four republics of the FSU: Azerbaijan, Russia, Kazakhstan and Turkmenistan. The rest of its coast belongs to Iran.

The Caspian Sea is unique in many respects. Its subsoil is exceptionally rich in oil and gas.[10] The Sea and its inflowing rivers

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7. *See* 7 NEB, *supra* note 2, at 39.

8. *See* 1 NEB, *supra* note 2, at 518.

9. The classification of the Caspian is a complicated issue. It is defined as an "inland sea", for example. *See* 2 NEB, *supra* note 2, at 612. The Food and Agriculture Organization's ("FAO") Systematic Index also qualifies the Caspian sea as an "inland sea." *See* FAO, *Systematic Index of International Water Resources Treaties, Declarations, Acts and Cases by Basin, in* 2 LEGISLATIVE STUDY NO. 34, at 287 (1984). Notably, however, the Caspian Sea is included in the list of "Major Lakes of the World." WATER IN CRISIS 161-65 (P.H. Gleick Ed., 1993) (Table B.10). One expert from the Intergovernmental Oceanographic Commission of UNESCO has asserted that "from an oceanographic point of view (composition of water, fauna, flora) the Caspian Sea should be considered as a sea. In fact, the Caspian Sea is a relict marine basin." *See Minutes of the Meeting on Cooperation of UN Organizations in the Caspian Sea Initiative* 5 (Jan. 17, 1995) (on file with the author). For a detailed analysis of the legal issues regarding the Caspian Sea, *see* S. Vinogradov & P. Wouters, *The Caspian Sea: Current Legal Problems*, 55 ZEITSCHRIFT FÜR AUSLÄNDISCHES ÖFFENTLICHES RECHT UND VÖLKERRECHT 604-23 (1995); S. Vinogradov & P. Wouters, The Caspian Sea: Quest for a New Legal Regime, 9 LEIDEN J. INT'L L. (forthcoming 1996).

10. According to some estimates, the total recoverable resources of the Caspian Sea are

contain ninety percent of the world's sturgeon and other valuable fishery resources. However, the Caspian Sea and its basin suffer serious environmental problems, especially in terms of water quality. Pollution of the inflowing rivers, particularly of the Volga River which provides about eighty percent (305 km^3) of the total annual inflow, is very high. Almost all of the waters of Azerbaijan and a large part of Georgia and Armenia are drained into the Caspian Sea. For example, approximately seventy-five percent of the waste water produced in Azerbaijan is discharged into the Caspian without any treatment.[11]

Another problem of great concern to the Caspian littoral states, particularly those sharing the low gradient northern part of the Sea, is the recent rise in the sea level. The level of the Caspian Sea, which can fluctuate much more than the open oceans, depends on many variables, primarily river inflow and evaporation. The more than two meter increase (from - 29 to -27 below the global mean sea level) of the Caspian Sea level in the last fifteen years, coupled with the continuing rise at the rate of about 15 cm per year, has already resulted in wide-scale inundation and erosion of coastal areas. Assuming the water level will continue to rise over the next decades, as is predicted by certain scientific estimates, more than one hundred thousand people will have to be removed from the flooded zones.[12]

D. Transboundary Water Systems of the Asian Part of the Former Soviet Union

A number of large river systems, including the Ural and Irtysh, are shared by Russia and Kazakhstan. The Ural River is 2,428 km long with a catchment area of 237,000 km2.[13] It rises in the Ural Mountains on Russian territory and flows south, crosses the northwestern part of Kazakhstan and flows into the Caspian Sea. Water pollution in the Ural is considerable because of the high concentration of petrochemical and metallurgical industries in the basin.[14]

7,000 MMt of oil and condensate and 5 Tcm of natural gas. *See* BUSINESS MOSCOW NEWS, Nov. 9, 1994, at 12, *cited in* J.P. Dorian & P.S. Kort, *Russian Dominance Over "Near Abroad" Linked to Energy*, EAST-WEST CENTER WORKING PAPER, ENERGY & MINERAL SERIES NO. 21, SEPT. 1995, at 13.

11. *See* EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH, WORLD HEALTH ORGANIZATION, INTEGRATED WATER MANAGEMENT AND PROTECTION PROJECT FOR THE CASPIAN SEA AND ITS CATCHMENT AREA, SITUATION ANALYSIS AND PROJECT PROPOSAL 5 (1994).

12. *Id.* at 9.

13. Geographically, the Ural River basin belongs both to the European and Asian parts of the FSU, as it straddles the imaginary line separating Europe from Asia.

14. *See, e.g.*, 12 NEB, *supra* note 2, at 194.

The Irtysh River flows from south to north, forming a part of the greater basin of the Ob' River, a major river of Western Siberia. The Irtysh, the largest tributary of the Ob', is 2,640 km long and drains an area of 1.6 million km^2. It rises in the Altai Mountains in Sinkiang, China, crosses the Chinese border, flows west through Lake Zaisan and northwest across eastern Kazakhstan. The Irtysh traverses Russian territory and joins the Ob' river at Khanty-Mansiysk. The river is navigable for most of its course. It has two main tributaries: Ishim and Tobol.[15] The Ishim River rises in the north of the Kazakh Uplands and flows first west then north, crossing the Russian-Kazakh border near Petropavlovsk. It enters the Irtysh at Ust-Ishim. The river is 2,450 km long and drains an area of 144,000 km2.[16] The Tobol River, another left bank tributary of the Irtysh, is 1,591 km long and has a drainage area of 426,000 km2. It flows northeast across the West Siberian Plain through the Kustanai *oblast'* of Kazakhstan and Kurgan and Tyumen *oblast's* of Russia before entering the Irtysh.[17]

All transboundary rivers of the Asian part of the FSU are used extensively. Pollution, especially by heavy metals, and water deficit are the major problems facing the neighboring regions of Russia and Kazakhstan. A number of water reservoirs, such as the Karatomar on the Tobol River, and a system of water conduits, such as the Irtysh-Karaganda canal which is 490 km long, were constructed to provide water for industry and population. The water is used primarily for ore mining and smelting, agriculture, municipal and farm settlements in northern and eastern Kazakhstan and in the Ural and Western Siberia regions of Russia.[18]

E. The Aral Sea Basin

Problems of water quantity and quality are even more acute in Central Asia where environmental crisis has reached unprecedented proportions. Four Central Asian republics, Kirghizstan, Uzbekistan, Tadjikistan and Turkmenistan, as well as southern Kazakhstan, share basins of the two principal rivers of the region: the Amu Darya and Syr Darya. Both rivers flow into the Aral Sea, which straddles the border between Uzbekistan and Kazakhstan.[19]

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15. *Id.* v. 6, at 392; 10 BROCKHAUS, *supra* note 4, at 646.
16. *See* 6 NEB, *supra* note 2, at 406.
17. *Id.* v. 11, at 813.
18. *See* 6 NEB, *supra* note 2, at 392; 10 BROCKHAUS, *supra* note 4, at 646.
19. *See generally* UNITED NATIONS ENVIRONMENT PROGRAMME, THE ARAL SEA, DIAGNOSTIC STUDY FOR THE DEVELOPMENT OF AN ACTION PLAN FOR THE CONSERVATION OF THE ARAL SEA (1993) [hereinafter THE ARAL SEA, DIAGNOSTIC STUDY].

Approximately ninety-two percent of the surface water resources of the region are in the Aral Sea drainage basin. The former Soviet area of the basin is about 1.5 million km^2 and the whole basin comprises about 1.8 million km^2.[20] The Amu Darya catchment area constitutes sixty-two percent of the surface water resources of the region, and the Syr Darya forms the remaining thirty percent.[21] The distribution of water resources of the Aral Sea drainage basin is exceptionally uneven. Whereas in the upper reaches of the Amu Darya and Syr Darya there is an abundance of good-quality water, the middle and lower reaches suffer severe shortage of potable water resources.[22]

The Amu Darya is 1,415 km long, and has the highest water bearing capacity of the region. Its average perennial runoff is about 69 km3 and it has a basin area of 465,500 km2. The Amu Darya originates from the confluence of the Piandj and Vakhsh rivers. The Piandj rises in the Pamir Mountains and constitutes nearly the entire border between Tadjikistan and Afghanistan. The Vakhsh is a product of the concourse of several rivers flowing from Kirghizstan and Tadjikistan. The Amu Darya flows west, forming the border between Afghanistan and Uzbekistan, and turns northwest, cutting through the Sundukli and Karakum deserts of Turkmenistan. Finally, the river crosses the Karakalpakia region of Uzbekistan and reaches the southern shore of the Aral Sea. For most of its course, the river flows to its delta without receiving any water and loses much of it to irrigation, evaporation and drainage.[23]

The Syr Darya is the longest river in Central Asia (2,212 km) but it carries less water than the Amu Darya. Its basin includes the rivers of the Ferghana Valley in Uzbekistan and the Naryn and Kara Darya rivers, which flow from Kirghizstan. After the confluence of the Naryn and Kara Darya, the Syr Darya flows west, crossing Tadjikistan and Uzbek territory, and then turns northwest through Kazakhstan to the Aral Sea.[24]

Both the Amu Darya and Syr Darya basins have an extended network of dams, reservoirs and irrigation canals. The largest canal is the Karakum Canal in Turkmenistan, which is 1,100 km long, from 20 to 100

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20. The Aral drainage basin includes also parts of northern Afghanistan and northeastern Iran. THE ARAL SEA, DIAGNOSTIC STUDY, *supra* note 19, at 3.

21. P.R. Craumer, *Agricultural Change, Labor Supply, and Rural Out-Migration in Soviet Central Asia, in* R.A.LEWIS, GEOGRAPHIC PERSPECTIVES ON SOVIET CENTRAL ASIA 35 (1992).

22. THE ARAL SEA, DIAGNOSTIC STUDY, *supra* note 19, at 18.

23. *See* 1 NEB, *supra* note 2, at 358; *see also* THE ARAL SEA, DIAGNOSTIC STUDY, *supra* note 19, at 20-21.

24. *See* 11 NEB, *supra* note 2, at 468; *see also* THE ARAL SEA, DIAGNOSTIC STUDY, *supra* note 19, at 21-26.

meters wide and navigable over 550 km. Its construction began in 1954 and its last leg is almost complete. The purpose of the canal was to transfer water to the southwestern part of Turkmenistan. The total amount of water diverted by this canal is estimated at 15-20 km^3 per year.[25]

The Aral Sea basin countries face a host of problems, including the significant degradation of environmental quality, serious deterioration of the health of the basin population, reduction in the efficiency of the regional economy and significant desiccation of the Sea itself. Once the fourth largest lake in the world, the Aral Sea has shrunk dramatically over the last thirty years.[26] The major reason for this was the increased removal of water from its inflowing rivers for irrigation. The annual water inflow into the Sea was reduced from approximately 69 km^3 in the 1960's to just 5 km^3 in 1989-90. The input of the Amu Darya to the Sea has been reduced to about 5 km^3, and the flow of the Syr Darya has more or less ceased since 1978.[27]

The Aral Sea, although much smaller and more saline than in the past, remains a significant water resource of the entire region. It has considerable potential for commercial, recreational, tourist and other uses. It also plays an important role in determining the climatic conditions in the region. In order to stabilize the Sea at its present level, there is a need to significantly increase the water inflow, according to some estimates to not less than 22-30 km^3 per year.[28]

F. Relevant Factors: An Overview

All shared water systems in the FSU vary significantly with respect to their natural and climatic conditions, degree and scope of

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25. *See* M. H. Glantz, *Creeping Environmental Phenomena in the Aral Sea Basin*, Paper Presented at the North Atlantic Treaty Organization's International Workshop, Critical Scientific Issues of the Aral Sea Basin: State of Knowledge and Future Research Needs 20 (May 2-5, 1994); A. Giroux, *Les Etats d'Asie Centrale Face à l'Indépendance: Ouzbekistan, République Kirghize, Tadjikistan, Turkmenistan*, LE COURRIER DES PAYS DE L'EST, Apr. 1994, at 6.

26. Since 1960, the area of the Aral Sea has decreased by fifty percent from 66,900 to around 33,000 km2 and its volume fell by seventy-four percent from 1090 to 280 km3. Salinity has risen from ten to around thirty grams per liter. *See* The ARAL SEA, DIAGNOSTIC STUDY, *supra* note 19, at 53-57; *see also* P. Micklin, *The Aral Crisis: Introduction to the Special Issue*, 33 POST-SOVIET GEOGRAPHY 275 (1992).

27. P. Sinnot, *The Physical Geography of Soviet Central Asia and the Aral Sea Problem*, *in* R.A. LEWIS, GEOGRAPHIC PERSPECTIVES ON SOVIET CENTRAL ASIA 87 (1992).

28. "Basic Provisions of the Concept concerning Solution of the Problems of the Aral Sea, its Coastal Area and the Aral Sea Basin with Respect to Social and Economic Development of the Region," adopted by the Decision of the Heads of Central Asian states and the Government of Russian Federation (the latter as observer), Jan. 11, 1994, in Nukus, at 10 (on file with the author) [hereinafter *Basic Provisions*].

development, extent of water use and pollution. In the European part of the FSU, there are generally sufficient water resources, and the main concern there is water pollution. In the southern and eastern parts of the FSU, especially in Central Asia, water availability and quality are major problems.

In the NIS, environmental protection appears to be an area where political considerations do not overshadow the need for concerted actions. Here, as compared with military or economic fields, some kind of common approach is relatively easier to achieve. Elimination of the centralized and relatively effective system of water management and pollution control that existed in the FSU has created an objective need for the NIS to coordinate their environmental and water management policies.

However, certain political factors could either obstruct or facilitate cooperation in the management and utilization of shared water resources. First, the emergence of the NIS resulted in the transformation of rather symbolic borders between the former Soviet republics into international boundaries. The legitimacy of these boundaries is yet to be confirmed. Explicit or implicit territorial claims such as that of Estonia against Russia with respect to some boundary areas do not encourage cooperation in managing their transfrontier waters.

Moreover, political relations between the NIS differ significantly depending upon the states concerned. These relations vary from relative integration, as between Russia and Byelorussia, to aloofness, as between Russia and the Baltic states, even to open hostility, as between Armenia and Azerbaijan. Some states are overwhelmed by civil wars and turmoil, such as Tadjikistan and Georgia, or internally divided, such as Moldova, where the Trans-Dnestr republic, separated by the Dnestr river from the rest of the country, claims independence. Internal and external political instability and conflicts inevitably affect these states' willingness or ability to cooperate.

The majority of the former Soviet republics participate in the Commonwealth of Independent States (CIS). However, the CIS, a rather loose organization, is not able to impose obligatory decisions or ensure unified policy, especially in sensitive areas. At present, it is hard to expect that all of the former Soviet republics will be equally eager to deal with each other on such issues as environmental protection and natural resource management. However, at least some of the NIS have come to realize that cooperation between them is essential in solving both domestic and transfrontier environmental problems.

III. AN EMERGING LEGAL FRAMEWORK FOR COOPERATION[29]

A. *Multilateral Cooperation within the CIS*

Of the numerous documents concluded by the NIS, primarily within the CIS, none directly deals with the issue of transboundary water resources. However, some of these documents either refer to the environment in general or contain provisions which can be regarded as relevant to the topic of transboundary water resources.[30]

The CIS Charter of 1993 (the Charter) serves as a foundation for cooperation between the CIS members in different areas, including protection of the environment.[31] Article 2 of the Charter enumerates, among other basic purposes of the Commonwealth, comprehensive cooperation in the field of the environment.[32] According to Article 4, protection of the human health and the environment belongs to the sphere of joint activities of its members.[33] The Charter includes, among other areas of cooperation, "joint measures for protection of the environment" and "mutual assistance in elimination of the consequences of ecological disasters and of other kinds of emergency situations".[34] The Charter, however, does not go beyond these very general provisions, which is quite understandable given the circumstances of its drafting and the predominately political factors that motivated its adoption.

More specific provisions are contained in the Agreement on Cooperation in the Field of Ecology and Environmental Protection of February 8, 1992 (the Agreement) which was signed by ten of the fifteen former Soviet republics.[35] In fact, this was one of the first agreements

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29. This study focuses on the water-related legal developments between the NIS only. It does not address relations between the NIS and the states-neighbors of the FSU (such as Finland, Poland, China, etc.), nor does it consider multilateral international regimes relevant to the topic, such as the 1974 and 1992 Conventions on the Protection of the Marine Environment of the Baltic Sea Area and the 1992 Convention on the Protection of the Black Sea against Pollution. Both regimes prescribe measures relating to land-based pollution, including pollution through inflowing rivers.

30. For a more detailed summary of the environment-related cooperation within the CIS, see S. Vinogradov & A. Tranin, CIS: INTERSTATE RELATIONS IN THE FIELD OF ENVIRONMENTAL PROTECTION, GOSUDARSTVO I PRAVO [STATE AND LAW], No 12, 1994, at 37-45 (in Russian).

31. Charter of the Commonwealth of Independent States, June 22, 1993, 34 I.L.M. 1279 (1995) [hereinafter *Charter of the Commonwealth*].

32. *Id.* at 1283.

33. *Id.* at 1284.

34. Charter of the Commonwealth, art. 19, *supra* note 31, at 1288.

35. *See* Agreement on Cooperation in the Field of Ecology and Protection of the Natural Environment, Feb. 8, 1992, *in* 1 BYULLETEN' MEZHDUNARODNYKH DOGOVOROV [BULLETIN OF

concluded by the NIS. The Agreement lays down some fundamental principles, such as: the right of every human being to a decent environment and ecological security, the right of every state to pursue its own policy in the exploitation of its natural resources, the non-harmful use of the territory of one state with respect to the environment and natural resources of the others, and the recognition of the integrity and indivisibility of the natural environment.[36] The parties to the Agreement acknowledge in its preamble that ecosystems and river basins do not coincide with interstate boundaries. However, having a "framework" character, the instrument does not contain any specific rules regarding the management or exploitation of shared natural resources.

Thus, the states parties to the Agreement undertake to work jointly in elaborating and implementing their environmental policies.[37] Such joint efforts are to include:

- harmonization of their environmental legislation, norms and standards;
- joint development and fulfillment of interstate environmental programs and projects;
- use of common criteria, methods and procedures of environmental assessment and control;
- establishment and support of the interstate environmental information system;
- elaboration and implementation of common economic incentives and sanctions; and
- cooperation and mutual assistance in cases of environmental emergencies.[38]

In order to achieve these goals, the parties decided to create an institutional infrastructure consisting of the Interstate Ecological Council (IEC) and Interstate Ecological Fund (IEF).[39] The IEF is designed to provide financial support for joint environmental programs and, in particular, remedial measures in the event of environmental emergency.[40] The IEC has a mandate to fulfill such functions as:

INTERNATIONAL AGREEMENTS] 8-12 (1993) (in Russian). The Agreement was signed by the following NIS: Azerbaijan, Armenia, Byelorussia, Kazakhstan, Kirghizstan, Moldova, Russia, Tadjikistan, Turkmenistan and Uzbekistan. *Id.*

36. *Id.* at preamble.
37. *Id.* at art. 1.
38. *Id.* at art. 2.
39. *Id.* at art. 4.
40. *Id.* at art. 4.

- coordination and implementation of agreed upon environmental policies;
- environmental assessment of development and investment programs and projects, which affect or can affect the interests of two or more state parties;
- assistance in the resolution of environmental conflicts between the parties; and
- definition of conditions and terms of the parties' implementation of obligations under international environmental agreements of the former Soviet Union.[41]

It was decided that the Agreement would be supplemented by additional agreements or protocols on specific issues of multilateral cooperation.[42] In the following years, a number of such documents were agreed to, thus broadening the normative basis of environmental cooperation.

The Protocol on the Establishment and Powers of the Inter-State Ecological Council was adopted at the first session of the IEC in June 1992 (the Protocol).[43] It defines the composition, functions and powers of the IEC as an international coordinating body and its structure and procedures. The IEC is composed of the environmental ministers of the states parties and its decisions, adopted by consensus, are binding on the members.[44] It convenes on a regular basis.[45]

The Protocol sets forth the basic provisions of the IEF that functions under the auspices of the IEC. More detailed provisions concerning the IEF are contained in the Statute of the IEF adopted at the same session.[46] The headquarters of both institutions are located in Minsk (Byelorussia).

The supplemental Protocol on Obligations, Rights and Responsibility of the Parties to the Agreement on Environmental Cooperation (the supplemental Protocol) was adopted at the third session of the IEC in 1993.[47] Under the supplemental Protocol, the parties agreed

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41. *Id.* at art. 5.

42. *Id.* at arts. 5, 6.

43. Minutes of the First Session, Interstate Ecological Council at 9-10 (1992)(in Russian) (on file with the author) [hereinafter IEC Minutes I].

44. *Id.*

45. The following sessions of the IEC have been convened to date: July 1, 1992, Minsk (Byelorussia); Oct. 2, 1992, Almaty (Kazakhstan); 3rd-May 1993, Tashkent (Uzbekistan); Nov. 4, 1993, Minsk; 5th-September 1994, Moscow (Russia); June 6, 1995, Minsk.

46. IEC Minutes I, *supra* note 43.

47. Minutes of the Third Session, Interstate Ecological Council, Supp. 14, at 27-28 (1993) (in Russian) (on file with the author).

to, *inter alia*, ensure implementation of the decisions of the IEC; receive observers of the IEC or of interested states parties within their respective territories for appraisal of environmental situations of interstate concern; exchange information on the state of their respective environments; resolve their controversies and disputes through consultations between them or special sessions of the IEC; provide each other with information on environmental impact assessment of the projects which might cause transfrontier pollution; and, coordinate environmental protection measures in the territories adjacent to their borders.[48] Failure to fulfill these obligations may lead to sanctions as defined by the IEC.[49] The parties are entitled to, *inter alia*, receive information at the disposal of the IEC; have access to technologies and methods developed under the auspices of the IEC, and exchange observers for the assessment of environmental situation and transfrontier impact of activities undertaken on another state's territory.[50]

The supplemental Protocol has serious deficiencies. There is a notable absence of legal expertise in its drafting.[51] The provisions of the supplemental Protocol are vague and imprecise. The document lacks the necessary procedural prerequisites to facilitate the implementation. For instance, it provides that the parties bear responsibility for the fulfillment of their obligations under the Agreement. Parties are also responsible for reliability of the information provided by them to the IEC. However, there is no indication as to what kind of sanctions will be imposed against parties failing to fulfill their obligations or how relevant decisions can be made by the IEC, which must act on the basis of consensus. On the whole, the supplemental Protocol is more a declaration of intentions rather than a serious legal document. It is unlikely that the Protocol will serve as a viable instrument in the event of serious environmental controversy between the parties.

The practical achievements of the IEC in promoting environmental cooperation are not very impressive. Financial constraints play a particularly negative role in this respect. In addition, political interests and considerations still prevail over environmental concerns in the relationships between some of the NIS. Thus, the number of states that demonstrate genuine interest in environmental cooperation on a

48. *Id.* at art. 1.

49. *Id.* at art. 3.

50. *Id.* at art. 2.

51. The Protocol was drafted by Moldova and initialed at the second session of the IEC. However, due to significant substantive and redactional defects of the text, it had to be redrafted, although the final version of the Protocol retained its major shortcomings. Interestingly, Moldova did not sign the Protocol, nor did it participate in the sessions of the IEC.

multilateral level has decreased since February 1992. Only seven out of the initial ten signatories of the Agreement took part in the subsequent sessions of the IEC.[52]

At its first session, the IEC considered the most critical environmental issues and defined a list of priority areas for future ecological cooperation. These included, *inter alia*, protection and rational use of the water resources of the Dnepr river basin, the Caspian Sea, the Aral Sea basin and the Amu Darya and Syr Darya rivers and protection of the Black, Azov and Baltic Seas.[53] However, too little has been done in this respect within the framework of the IEC, an organization not particularly suited to deal with the issues of shared natural resource utilization and management. Instead, there is a marked trend towards a more limited, subregional or bilateral approach with regard to transboundary water resources. This is so in the case of the Caspian Sea, which is now the subject of negotiations between coastal states,[54] the Aral Sea basin and of the water resources shared by Russia with Ukraine and Kazakhstan.

B. Subregional Cooperation: the Aral Sea Basin

The environmental crisis in the Aral Sea basin, including the Amu Darya and Syr Darya rivers, has recently become the focus of growing interstate cooperation between the five Central Asian republics. Having inherited the Soviet-era system and principles of water distribution in the region, the basin states have been able to collaborate over issues of common pressing concern. In fact, the water management practices and infrastructure that existed prior to independence have facilitated cooperative efforts of the Aral states and helped to avoid serious disputes regarding the exploitation of transboundary water resources.

Having obtained the new status of independent states, the Central Asian republics immediately focused on the most acute problem of their interstate relations - management and utilization of scarce water resources of the region. As a first step in coordinating their national water policies they concluded, on February 18, 1992, an agreement concerning transboundary water resources.[55] The Agreement provides for the

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52. Azerbaijan, Moldova, and Turkmenistan abstained from signing the supplementary protocols and from participation in the IEC. However, Azerbaijan, Georgia and Moldova took part in the work of the fifth session of the IEC.

53. *See* IEC Minutes I, *supra* note 43.

54. *See* Sergei Vinogradov & Patricia Wouters, *The Caspian Sea: Quest for a New Legal Regime*, 9 LEIDEN J. INT'L L. (1996).

55. Agreement on Cooperation in the Management, Utilization and Protection of Interstate Water Resources, Feb. 18, 1992, Kazakhstan-Kirghizstan-Tadjikistan-Turkmenistan-Uzbekistan (in Russian) (on file with the author).

equality of the parties' rights to use, and responsibility to ensure rational utilization and protection, of the water resources of the region which are defined as "common and integral".[56] The parties undertake to strictly observe the agreed regime and regulations of water use and protection,[57] and to refrain from activities within their respective territories that might affect the interests of other parties or cause damage to them, lead to deviation from the agreed volumes of water consumption or to pollution of water.[58] Other obligations include coordination of efforts to solve the Aral Sea crisis,[59] exchange of information in the field of water management, comprehensive utilization and protection of the water resources, and joint scientific research.[60]

The Agreement establishes the Interstate Commission for Water Management Coordination (ICWC) with a mandate to control and ensure rational utilization and protection of the interstate water resources.[61] The ICWC is responsible, *inter alia*, for the determination of the water management policy in the region; comprehensive and rational utilization of the water resources; annual preparation and approval of the water consumption limits for each of the republics and for the region as a whole.[62] The decisions of the ICWC regarding the specified intake limits, rational utilization and protection of the water resources are obligatory for all water users.[63] The parties agree to elaborate economic and other forms of responsibility for violation of the specified regime and limits of water utilization.[64] Any disputes under the Agreement are to be settled by the heads of the parties' water management authorities, and, if necessary, with the participation of a party not involved in the dispute.[65]

The ICWC is designated also to govern activities of the two inter-republican Basin Water Management Bodies (Bassejnovoe Vodnoje Ob'edinenie—BVO): BVO "Amu Darya" and BVO "Syr Darya".[66] By this decision, the five Central Asian states have preserved the unified water management system in the form of BVOs, created in 1986.[67] Initially subordinated to the USSR Ministry of Water Management (Minvodkhoz), the BVOs, following independence, were subordinated to the ICWC as a

56. *Id.* at art. 1.
57. *Id.* at art. 2.
58. *Id.* at art. 3.
59. *Id.* at art. 4.
60. *Id.* at art. 5.
61. *Id.* at art. 6.
62. *Id.* at art. 7.
63. *Id.* at art. 10.
64. *Id.* at art. 11.
65. *Id.* at art. 12.
66. *Id.* at art. 8.
67. Basic Provisions, *supra* note 28, at 10.

single organ responsible for water management in the region.[68] Subsequently, the BVOs' functions were significantly broadened. In the past these functions related primarily to water use control and implementation of water allocation decisions taken by the Minvodkhoz. Since 1992, however, the ICWC and its bodies are responsible also for water development and allocation planning, both short-term and long-term, water quality control and water conservation and environmental protection.[69] The ICWC has been involved in preparing annual plans for water allocation and utilization at the interstate level; defining limits of water use by each riparian state; determining common technical solutions regarding the water resources in the Amu Darya and Syr Darya basins, including their tributaries, and the irrigation and drainage water collector network.[70]

The subregional cooperation was significantly fostered by the Agreement concerning joint actions for addressing the Aral Sea crisis, which was signed by the Heads of Central Asian states on March 26, 1993.[71] The objectives of the parties, as defined in the Agreement, include, *inter alia*, the rational utilization of the limited land and water resources of the Aral Sea basin; maintaining appropriate water quality in the rivers, reservoirs and aquifers through reduction and prevention of the discharge of polluted or untreated waste or drainage waters; ensuring water inflow to the Aral Sea (which would maintain it at an ecologically acceptable level), thus preserving the Sea as an object of nature; improving the system of water utilization in the basin and creating interstate legal and regulatory instruments; and, resumption of works, on new mutually acceptable terms, aimed at the transfer of additional water resources to the Aral Sea basin.[72]

The Agreement established the Interstate Council for the Aral Sea (ICAS).[73] The ICAS is comprised of the Executive Committee (EC), the ICWC, which was included in the ICAS as one of its main organs, and the Interstate Commission on Socio-Economic Development, Scientific,

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68. *See supra* note 55, at art. 8. *See also* Statute (Regulations) of the Interstate Commission for Water Coordination, Tashkent, December 5, 1992 (on file with the author).

69. Information on the current activities of the ICWC and BVOs was provided to the author at a NATO International Workshop in Tashkent, Critical Scientific Issues of the Aral Sea Basin: State of Knowledge and Future Research Needs (May 2-5, 1994).

70. *Id.*

71. Agreement on Joint Actions for Addressing the Problems of the Aral Sea and its Coastal Area, Improving of the Environment and Ensuring the Social and Economic Development of the Aral Sea Region, March 26, 1993, Kazakhstan-Kirghizstan-Tadjikistan-Turkmenistan-Uzbekistan-Russia (with Russia as observer) (in Russian) (on file with the author).

72. *Id.* at art. 1.

73. *Id.* at art. 2.

Technical and Ecological Cooperation.[74] The ICAS was designated as the principal regional organization responsible for formulating policies and preparing and implementing programs for addressing the crisis.[75] The ICAS consists of twenty high-level members, including ministers of water management from each state.[76] Each state has one vote and the ICAS's decisions are adopted by consensus.[77] Representatives of the Russian Federation participate in the work of the ICAS as observers. The ICAS meets at least twice a year.

The ICAS is entrusted with policy-making functions. It can adopt recommendations concerning social, economic and environmental problems of common interest; approve joint programs and plans of actions; recommend interstate legal instruments and common principles of water management, utilization and protection, for adoption by its member states; and approve financial arrangements necessary for the implementation of respective programs and projects.[78]

The EC is a permanent operational organ of the ICAS. It is charged, among other tasks, with projects selection, preparation and implementation, realization of the decisions of the ICAS and cooperation with other international institutions.[79]

Another major regional institution is the International Fund for the Aral Sea (IFAS) which was created in January 1993.[80] It is responsible for mobilizing the financial resources provided by its member states and donors, other states and international agencies. The IFAS, using these funds, is to implement the projects approved by the ICAS.

The state parties to the Agreement undertook also to work out a joint strategy addressing the Aral Sea crisis and to prepare a coordinated program of actions. The Basic Provisions of the Concept (the Concept) and a short-term Program were adopted at a meeting of the Heads of Central Asian states in January 1994 in Nukus (Uzbekistan).[81]

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74. *Id.*

75. The Statutes (Regulations) of the ICAS and its Executive Council were adopted on July 13, 1993 and subsequently approved by the Heads of State on January 11, 1994 at the meeting in Nukus (on file with the author).

76. Statutes of the ICAS, *supra* note 75, at para. 1.

77. *Id.* at para. 8.

78. *Id.* at para. 5.

79. *See* Statute of the ICAS Executive Council, *supra* note 75.

80. The decision to create the IFAS was taken by the Heads of the Aral basin states on January 4, 1993. The Statute (Regulations) of the Fund was adopted at a meeting in Kzyl-Orda on February 26, 1993 (on file with the author).

81. Basic Provisions, *supra* note 28, and the "Program of actions aimed at improving the environmental situation in the Aral Sea basin over the next 3-5 years with respect to social and economic development of the region" [hereinafter *Program of Actions*] were adopted by the Decision of the Heads of Central Asian states and the Government of Russian Federation (the latter as observer), January 11, 1994, in Nukus (on file with the author).

The Concept formulates a new strategy for the economic development of the Aral Sea basin given the limited water resources in the region. The strategy is based principally upon a policy of water conservation that is to be implemented at all levels, and in all spheres, of the regional economy, primarily in agriculture and industry. It is envisaged that these measures will increase the river inflow to the Aral Sea up to 22 km^3 annually by the year 2000, and up to 30 km^3 after 2010.[82] Importantly, the Aral Sea was finally recognized as a legitimate water user along with the five basin states.

The Program focuses on a number of concrete projects to be realized over the next three to five years. The Aral Sea basin states intend, *inter alia*, to work out a common strategy of allocation, rational utilization and protection of water resources in the Aral Sea basin and to draft interstate legal instruments for implementing this strategy; to develop a unified inventory system of the Aral Sea basin water resources; to take measures of water pollution prevention and control, particularly with respect to drainage waters and industrial wastes; to complete the drainage water collector systems in the Amu Darya and Syr Darya basins and to construct a number of waste water treatment plants in the region; to prepare projects aimed at creating artificially watered ecosystems in the Amu Darya and Syr Darya deltas and on the exposed Aral Sea bed.[83]

A very sensitive issue, raised in both the Concept and Program, is the idea to supplement diminished water resources of the region by a water transfer into the Aral Sea basin from extra-basin sources.[84] These kinds of projects, involving primarily Russia's Siberian rivers, for example, the Ob' River, were conceived long before the demise of the Soviet Union.[85] At that time, it was a purely domestic matter, requiring simply a decision by a central authority. Presently, however, the issue of an extra-basin water transfer has acquired an international character. Any such project will require a very thorough examination of its political, economic and ecological consequences, both at the domestic and international levels, and the subsequent elaboration of an international agreement. In view of the increased environmental awareness in Russia, it is doubtful that any project of this kind will be readily accepted by the Russian public and approved by the Russian Parliament.

The quality of the legal documents concluded to date in the

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82. *See* Basic Provisions, *supra* note 28, at 10.

83. *Id.*

84. *See* Basic Provisions, *supra* note 28, at 10; Program of Actions, *supra* note 28, at para. 8.

85. Some Central Asian politicians assume that Russia still owes them Siberian river water, regarding the Aral Sea crisis as a legacy of the FSU.

context of the Aral Sea basin leaves much to be desired. This can be explained, in part, by a general lack of international legal expertise in the countries concerned. Assessing the legal instruments concluded in the region, one leading authority in the field noted that they have been drawn up in the absence of a thorough study of the situation and are replete with duplications and inconsistencies.[86] His more serious criticism is that "the agreements seem to imply acceptance of the existing situation with regard to the use of water, which calls for *water apportionment* and *maximum* utilization.".[87] According to prevailing international practice, the concept of water apportionment is replaced with that of equitable and reasonable utilization. In addition, the emphasis currently is on the *optimum*, rather than maximum, utilization.[88] Finally, the Aral Sea documents lack provisions regarding compensation for damage and dispute settlement.

As to the new regional institutions, their functions and responsibilities are either not clearly defined or overlap, thus creating the potential for jurisdictional disputes. Some critics also highlight the confusion between regulatory and development functions, particularly in the case of ICAS and ICWC.[89]

At present, there exists a host of legal problems relating to interstate water rights, water and land use management, pollution prevention and control measures, environment and wetlands management standards and other matters which have to be dealt with by states and new regional institutions. International instruments and regulations will be required to set forth rules and standards, as well as national laws and mechanisms to implement them. There is also a need to improve the institutional framework in the basin. The proposals range from a radical change in the existing framework that would turn the ICAS into a strong regulatory basin institution to a more moderate modification involving the streamlining of existing bodies and the elimination of functional duplication.[90]

All this calls for a significant improvement of the legal component of the Aral Sea basin cooperation. This task could be facilitated through the assistance of international organizations and development and financial agencies, such as the European Union, the World Bank, UNEP, and UNDP, all of which are currently involved in

86. D. Caponera, *Legal and Institutional Framework for the Management of the Aral Sea Basin Water Resources, in* REPORT FOR THE EU- TACIS PROGRAMME, WATER RESOURCE MANAGEMENT AND AGRICULTURAL PRODUCTION IN THE CENTRAL ASIAN REPUBLICS 26 (1995).

87. *Id.* (emphasis in original).

88. *Id.*

89. *Id.* at 27-29.

90. *Id.* at 30-33.

numerous activities addressing the Aral Sea crisis.[91]

C. *Bilateral Cooperation*

A number of transboundary drainage basins in the FSU are shared by only two states and are the subject of bilateral relations. This is particularly the case with the three largest former Soviet republics: Russia, Kazakhstan and Ukraine. Russia, having a common land and maritime border with sixteen other countries, is destined to deal with many transboundary problems on a bilateral level. In 1992, Russia initiated agreements on the joint utilization and protection of transboundary water resources with its neighboring former Soviet republics—Kazakhstan and Ukraine.[92]

These documents are similar in many respects. A duty to cooperate in the management of transboundary water objects[93] is the underlying principle of both agreements. This is reflected in the obligations of the parties: to adopt joint measures on water regulation and protection;[94] to exchange information regarding shared water resources;[95] to notify in emergency situations;[96] to apportion water

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91. The European Union is currently implementing a project aimed at improving the administrative, institutional and technical framework within which the Aral Sea basin states can develop policies, strategies and development programs for utilization, allocation and management of the water resources of the basin. *See* European Union Technical Assistance to the Economic Reform in the New Independent States Water Resource Management and Agricultural Production in the Central Asian Republics (1994). The World Bank, UNEP, and UNDP provide technical and financial support to the plan of actions addressing the Aral Sea crisis of the five Central Asian states. *See, e.g.*, World Bank Preparation Mission, Aral Sea Program-Phase 1, Aide-Memoire (Feb. 22-Mar. 19, 1994). Assistance in legal and institutional fields is a major component of both programs.

92. Agreement on the Joint Utilization and Protection of Transboundary Water Objects, Aug. 27, 1992, Russian Fed.-Kazakhstan [hereinafter *Russian-Kazakh Agreement*] (on file with the author); Agreement on the Joint Utilization and Protection of Transboundary Water Objects, Oct. 19, 1992, Russian Fed.-Ukraine [hereinafter *Russian-Ukrainian Agreement*] (on file with the author).

93. The agreements contain different definitions of transboundary water objects. Under the Russian-Kazakh agreement they mean "any surface water objects or underground waters, which form, cross the interstate borders or straddle them." Russian-Kazakh Agreement, *supra* note 92, at art. 1. The Russian-Ukrainian agreement contains a rather confusing definition of the same term, described as "the parts of rivers and of other surface watercourses, which form the interstate border; the surface and underground waters in the points, crossed by the interstate border." Russian-Uknarainian Agreement, *supra* note 92, at art. 1).

94. Russian-Kazakh Agreement, *supra* note 92, at art. 4.; Russian-Ukrainian agreement, *supra* note 92, at art. 3.

95. Russian-Kazakh Agreement, *supra* note 92, at art. 8; Russian-Ukrainian agreement, *supra* note 92, at art. 6.

96. Russian-Kazakh Agreement, *supra* note 92, at art. 10; Russian-Ukrainian agreement,

resources through agreed comprehensive schemes of water allocation;[97] and, to cooperate in monitoring of water quantity and quality.[98] Any water-related project or activity that might have transboundary consequences requires the prior consent of the other party.[99]

The parties also agree to adopt and implement pollution prevention measures and to refrain from activities that may cause adverse transboundary impact.[100] In the case of damages or losses inflicted upon one riparian state or within its territory by the water-related activities of another, the latter state is obliged to compensate for such damages. The amount of compensation is to be determined by a joint group of experts.[101]

Both agreements establish institutional mechanisms for cooperation. The Russian-Kazakh agreement sets forth a permanent body—the Commission on the Joint Utilization and Protection of Transboundary Water Objects—with a mandate to coordinate the activities of the parties, exchange hydrological data and other relevant information, control the implementation of agreed measures, and solve disputes between the parties.[102] Under the Russian-Ukrainian agreement, similar functions are entrusted to the Meetings of Plenipotentiaries convened at least once a year.[103]

However, the agreements are not identical. They contain some distinct provisions, which reflect the different natural conditions and water-related problems in the respective drainage basins. Thus, the emphasis in the Russian-Kazakh agreement is on the allocation of water resources. The document stresses the community of water resources of transboundary water objects, and the equality of rights and responsibilities of the parties with respect to their utilization and protection.[104] Interestingly, the Russian-Kazakh Agreement confirms the water allocation principles and schemes established in the times of the

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supra note 92, at art. 6.

97. Russian-Kazakh Agreement, *supra* note 92, at art. 5; Russian-Ukrainian agreement, *supra* note 92, at art. 4.

98. Russian-Kazakh Agreement, *supra* note 92, at art. 9; Russian-Ukrainian agreement, *supra* note 92, at art. 6.

99. Russian-Kazakh Agreement, *supra* note 92, at art. 5; Russian-Ukrainian agreement, *supra* note 92, at art. 2.

100. Russian-Kazakh Agreement, *supra* note 92, at art. 3. Surprisingly, the Russian-Ukrainian agreement does not contain a general obligation to take pollution prevention measures, except in emergency situations. Russian-Ukrainian Agreement, *supra* note 92, at art. 6.

101. Russian-Kazakh Agreement, *supra* note 92, at art. 7; Russian-Ukrainian agreement, *supra* note 92, at art. 5.

102. Russian-Kazakh Agreement, *supra* note 92, at arts. 11-13.

103. Russian-Ukrainian agreement, *supra* note 92, at arts. 13-16.

104. Russian-Kazakh agreement, *supra* note 92, at art. 2.

FSU.[105] The Russian-Ukrainian agreement, on the other hand, is more concerned with such issues as the regulation of water flow, flood control and the conservation and optimal utilization of the biological resources in transboundary waters.[106]

Given the very short time that has elapsed since the adoption of both agreements, it is too early to assess the effectiveness of each. It is evident, however, that a crucial factor in this respect will be the nature of future political and economic relations between the states concerned.

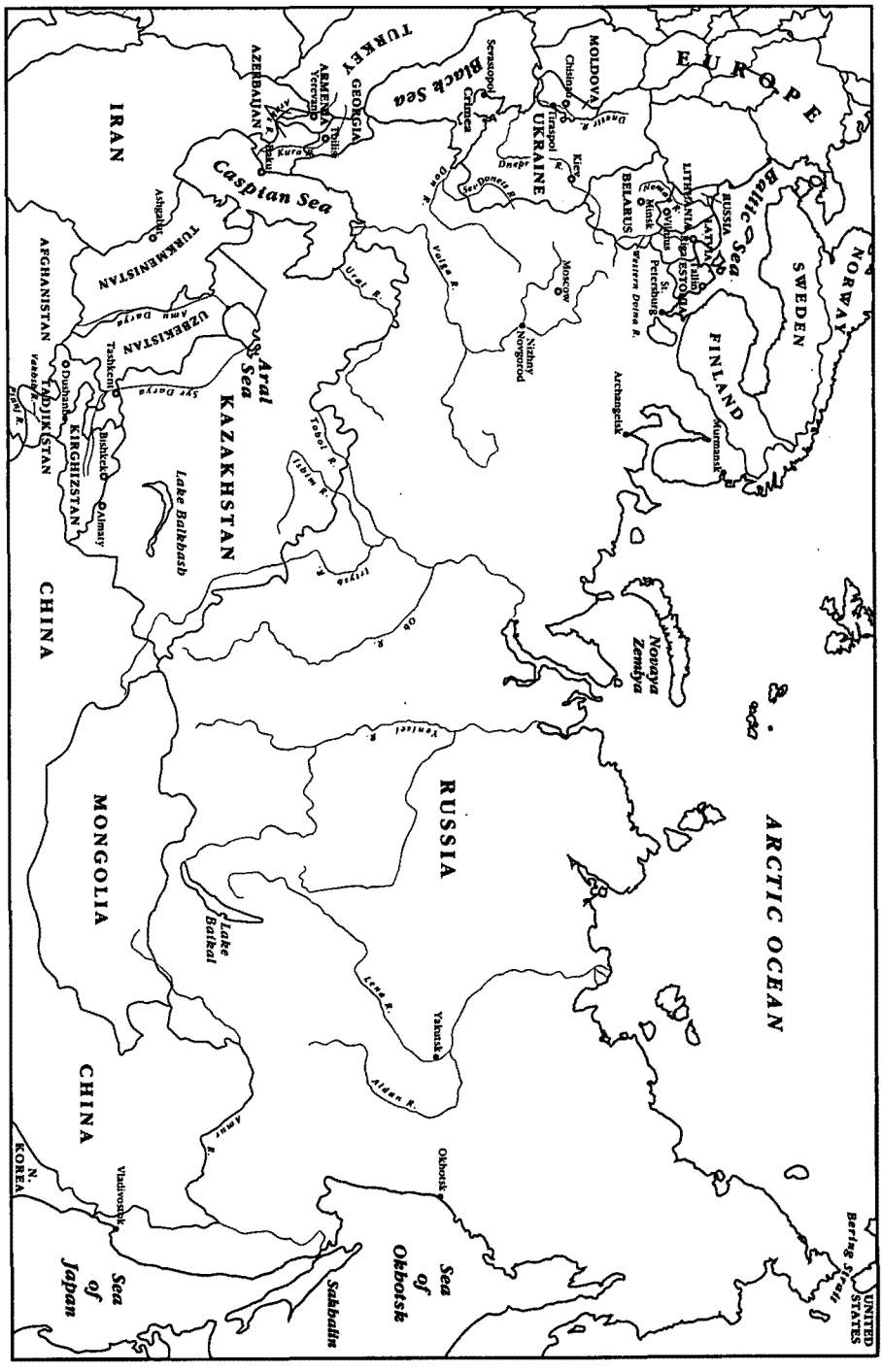
CONCLUSION

At present, principles and norms of international water law play a subordinate role in the relations between the NIS regarding transboundary water resources. In many respects, the current interstate policies are still determined by the decisions and practices established in the FSU before independence. The legal instruments adopted to date (for example, in the case of the Aral Sea basin) are often inadequate to deal with the complexity of water-related problems. There is an obvious tendency, however, towards more reliance upon relevant international law in addressing common issues of transboundary water resources.

Two opposing factors might determine ultimately whether, and how successfully, the problems of transboundary water resources in the FSU will be resolved. On the one hand, it is the existing political tension between some of the former Soviet republics in the absence of the mitigating role of a central authority. On the other hand, it is the continued economic and political interdependence of the NIS, together with their evident community of interests in many areas, including the use of transboundary water resources.

105. Russian-Kazakh agreement, *supra* note 92, at art. 4.

106. Russian-Ukrainian agreement, *supra* note 92, at arts. 7, 11, 12.


EUROPE
ARCTIC OCEAN
Baltic Sea
Black Sea
Caspian Sea
Aral Sea
Lake Baikal
Lake Balkhash
Sea of Okhotsk
Sea of Japan
Sakhalin
Novaya Zemlya
Bering Strait
NORWAY
SWEDEN
FINLAND
RUSSIA
BELARUS
UKRAINE
MOLDOVA
LITHUANIA
LATVIA
ESTONIA
POLAND
TURKEY
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ARMENIA
AZERBAIJAN
IRAN
TURKMENISTAN
UZBEKISTAN
AFGHANISTAN
TAJIKISTAN
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Crimea
Chisinau
Tiraspol
Tbilisi
Yerevan
Baku
Volga R.
Ural R.
Ob R.
Yenisei R.
Lena R.
Aldan R.
Amur R.
Irtysh R.
Tobol R.
Ishim R.
Syr Darya
Amu Darya
Kura R.
Don R.
Dnepr
Western Dvina R.
Vakhsh R.
Pyandzh R.