

8. ENVIRONMENT PROGRAMS IN SUPPORT OF ECONOMIC GROWTH AND REGIONAL INTEGRATION

A. INTRODUCTION

8.1 The SEE region has valuable environmental resources. These resources need to be preserved to safeguard future development prospects. At the beginning of the decade, industrial structures and energy systems of the old socialist regimes, which were established under an unrealistic set of relative prices and with minimal consideration for their environmental impact, had already mortgaged the region's future. During the past decade, conflict, the weakening of institutions and declining living standards all degraded further the region's environmental resources.

8.2 Strengthening national policies, institutions and environmental controls is essential. The rich natural resource base with which the SEE region has been endowed and the legacy of the socialist past already have led the SEE countries to define national environmental priorities. Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania and FYR Macedonia have produced, or are producing, National Environmental Action Plans: (FRY produced an Environment Strategy in 1990). Croatia, Romania, and Bulgaria have also completed Biodiversity Strategic Action Plans.

8.3 Many environmental issues, however, must be tackled on a regional level and require improved cooperation between countries through information exchange, setting up of (bilateral) joint bodies, and accession to and implementation of international conventions. The Danube, which is the major waterway passing through the region, poses special environmental challenges. Water management and water pollution in one country affects the quality of water or water conditions in downstream countries. Damage occurring in adjacent countries, such as flooding, are often caused by inappropriate water resource management in upstream countries. Many of the region's protected areas are located at borders. Their ecological viability is reliant on maintenance of the same protected areas in neighboring countries, making conservation a regional issue. Industrial pollution and dangers emanating from unsafe nuclear plants are not limited to national territories. Regional and international cooperation is required to manage risks and negative impacts resulting from these environmental hazards.

8.4 Moreover, the overall strategy in this Report proposes an approach based on a path towards European structures and their regulatory regimes. The EU has an agreed set of environmental principles and regulations, which are laid down in the "acquis communautaire". These impose stringent environmental standards, for which compliance by the SEE countries will take some time. Nevertheless, these standards provide a clear set of guidelines, which when aligned with the key immediate environment issues in the SEE region, helps prioritize the core agenda for both national and regional programs.

Regional programs, which provide technical and financial support, can be important in supporting the implementation of these programs and in addressing the specific regional challenges in the environmental agenda. Learning of best practice examples undertaken in some countries should assist in the transfer of knowledge.

8.5 The remainder of this Chapter uses the National Environment Action Plans to identify priority environmental issues of both national and regional importance. Section B provides a brief geographic overview of the SEE region. Section C describes the key environmental issues and problems, which have arisen because of conflict and transition. The following three sections (D, E and F) present the key issues and priorities for action in three categories: natural resource management—coastal zones, forests, land, and biodiversity (Section D); pollution control (Section E); environmental policy, legislation and institutions (Section F).

B. GEOGRAPHIC OVERVIEW

8.6 South Eastern Europe has a total land area of 645,000 km² and a population of 56 million (see Table 8.1). The region's topography is a combination of mountains and hilly plateau and basins surrounding the Danube Plain, extending from the Alps in the north-west and the Carpathians in the north east to the Balkan mountains in the south. Mountain elevations range from 3000m in Bulgaria to 2500 m in Romania. The Balkan plateaus are 1500 to 2500m and have abundant rainfall and numerous karst features (caves, sinkholes and treeless valleys). Recreational value of the mountains and the Adriatic and Black Sea coastlines are very high.

Table 8.1 Population And Population Density

<i>Country</i>	<i>Population (in millions) in 1998</i>	<i>Population density (people per sq. km.) in 1996</i>	<i>Rural population density (people per sq. km.) in 1995</i>	<i>Urban population (% of total population) in 1996</i>
Albania	3.4	120	354	38
Bosnia and Herzegovina	4.2	44 ^a	516	42
Bulgaria	8.2	80	67	69
Croatia	4.6	90	189	56
FYR Macedonia	2.0	80	130	60
Romania	22.5	100	107	56
FRY	10.6	100	123	57

a. In 1997. The World Bank. "World Development Indicators: 1999" Washington, D.C.: The World Bank: 1999.

Source: The World Bank. "World Development Indicators: 1998" Washington, D.C. The World Bank: 1998.

8.7 Climate varies from subtropical Mediterranean in the west and south to moderately continental in the north and east. Winter temperatures vary from -10C in the mountains to +10 C in the lowlands and average summer temperatures from 25C to 10C. The mountains receive abundant rainfall, averaging 1500m and as much as 3000-4000m along the westerly slopes of Croatia, while the Danube plains, with fertile chernozem soils receive only 300-400m, requiring supplementary irrigation for agriculture.

8.8 The Danube River and its tributaries constitute the hydrological backbone of the region and are also important as inland waterways. Major lakes include Ohrid, Prespa and Skoder on the borders of Albania, FYR Macedonia and Montenegro.

8.9 About one-third of the region is covered with forests (see Table 8.2): high value broadleaf and coniferous forests in the Carpathians and Alps; and drier open woodlands of Mediterranean type in the southern Balkan plateaus. Forest cover varies from over 50 percent in Bosnia and Herzegovina, 40 percent in Albania, to about 30 percent in Romania and FRY. Another third of the land is cultivated (13 percent in Bosnia and Herzegovina and 40 percent in Romania, FRY and Bulgaria).

8.10 The region's landscape and climate are important economic assets for both mountain and coastal tourism, which need to be managed on a sustainable basis as the economies recover. Its cultural heritage (rural and small town architecture and the built environment as well as individual monuments) is rich and varied and a further attraction.

Table 8.2: Land Use In The South East European Region

Country	Total Country Area (per 1000 km ²) ^a	Land Use (% of land area)			"Ratio of self- sufficiency in forestry" (how much more or less a country produces than it needs) ^e
		Cropland in 1995 ^b	Permanent Pasture in 1994 ^c	Forest Land ^d	
Albania	28.7	26	15	38	77.5
BiH	51.1	13	24	53	n.a.
Bulgaria	110.9	38	16	30	119.7
Croatia	56.7	22	20	44	127.0
FYR Macedonia	25.7	26	25	37	52.1
Romania	238.4	43	21	26	175.0
FRY	102.2 ^f	40	21	28 ^g	n.a.

a. Forest and Forest Industries, Country Fact Sheets, FAO 1997.

b. The World Bank. "World Development Indicators: 1998." Washington, DC: The World Bank, 1998.

c. The World Bank. "World Development Indicators: 1998." Washington, DC: The World Bank, 1998.

d. Forest and Forest Industries, Country Fact Sheets, FAO 1997.

e. Forest and Forest Industries, Country Fact Sheets, FAO 1997.

f. UNEP/UNCHS Balkans Task Force (BTF). "Assessment of the Damage to Biodiversity in Protected Areas of the Federal Republic of Yugoslavia." October 1999.

g. UNEP/UNCHS Balkans Task Force (BTF). "Assessment of the Damage to Biodiversity in Protected Areas of the Federal Republic of Yugoslavia." October 1999.

C. ENVIRONMENT IMPACTS OF WAR

8.11 Wars and conflicts which erupted in large parts of former Yugoslavia have resulted in adverse environmental impacts. Specific national level information on war-related environmental impacts is available only for Kosovo and Croatia, as follows, but the environmental impacts in other war-torn SEE countries can assumed to be similar:

- **Water and soil pollution around main military targets:** The Joint UNEP/UNHCS Balkans Task Force (BTF) found that the Kosovo conflict has not resulted in an environmental catastrophe.⁷⁹ In Croatia, surface water and soil pollution from burnt chemical facilities, forest fires, and munitions residue have been documented. Ground water pollution from war activities has not been evaluated but is considered to be a significant threat due to the extent of surface water and soil pollution, the karstic geology of the country, and the increased fissures due to detonations. In Kosovo, there are four environmental “hot spots” where surface water and soil quality have deteriorated due to hazardous material leakages from war-damaged industrial plants. These “hot spots” pose an immediate threat to human health and may pose a threat to neighboring countries. Leakages into the Danube attributable to the conflict include 100+ tons of ammonia, and 1000+ tons each of ethylene dichloride; and hydrogen chloride. A large part of the existing contamination of the water and soil pre-dates the conflict, and there are deficiencies in the treatment and storage of hazardous waste. Immediate actions recommended by the BTF to reduce the risk of future leaks are: clean-up of mercury and oil products from the sediments of the canal leading from Pancevo’s industrial complex to the Danube; clean-up of industrial sites with significant PCB contamination in Krajujevan; steps to ensure safety of drinking water in Novi Sad where groundwater is polluted with petrochemicals; and reduction of sulfur dioxide emissions from the copper mine in Bor which create transboundary air pollution issues in Bulgaria. Specific activities to accomplish the clean up and remediation efforts can be found in additional BTF reports.⁸⁰
- **Biodiversity:** A BTF report⁸¹ has concluded that war damage to ecosystems and related biodiversity, although significant within limited areas, was of relatively of minor importance in relation to the overall size of the protected areas.
- **Disposal of military waste:** Military waste, in particular land mines and unexploded bombs, litter the landscapes in Bosnia and Herzegovina, Croatia, and FRY. These are a significant threat to human safety and have negative economic impacts. In Croatia since 1991, over 1,000 people including 300 children have been killed by land mines. Landmines negatively affect the return of refugees, the reconstruction of homes, tourism, the regeneration of industry, and the economy. In Bosnia and Herzegovina, where forestry was once a major contributor to the

⁷⁹ “The Kosovo Conflict: Consequences for the Environment & Human Settlements,” UNEP/UNHCS Balkans Task Force, 1999.

⁸⁰ “Environmental Damage Assessment at Industrial Sites”, UNEP/UNHCS Balkans Task Force, July, 1999.

⁸¹ “Assessment of the Damage to Biodiversity in Protected Areas of the Federal Republic of Yugoslavia” UNEP/UNHCS Balkans Task Force, October 1999.

economy, over 20 percent forests are inaccessible because of landmines. Some of the areas, which drew tourists to SEE countries, are now inaccessible due to mines. Accumulation of expired pharmaceuticals and related medical waste, donated for the war-effort, is a significant problem in Bosnia and Herzegovina.⁸²

- **Breakdown of municipal services:** The conflict seriously affected environmental conditions in human settlements in FRY, including Kosovo, both in terms of infrastructure and the provision of municipal services. The damage to, and neglect of, existing solid waste facilities and collection infrastructure has resulted in the accumulation of garbage which poses a health risk and, mixed with demolition debris, an expensive disposal problem. Damaged power generation, water supply, and wastewater collection and treatment facilities have increased pressure on natural resources and environmental contamination. The destruction of bridges on the Danube River has interrupted the main traffic route causing economic losses to the shipping and transport industries and contamination of the Danube River with debris. To a lesser degree, environmental conditions in human settlements were also affected in Albania and FYR Macedonia, mainly through the overuse and deterioration of infrastructure and services caused by the influx of refugees from Kosovo.
- **The refugees' struggle for survival** has also caused serious, though localized environmental damage in the vicinity of the major refugee sites, in Albania and FYR Macedonia. There has been accumulation of waste, and some destruction of forests as refugees have relied on fuel-wood for heating and cooking. Anticipated impacts in Albania are destruction of soil fertility and structure, and damage to national parks and protected areas.⁸³ There is not yet an assessment of the extent of this damage.
- **Destruction of cultural heritage:** Cultural heritage sites and town landscapes have been damaged in Croatia and Bosnia and Herzegovina in previous conflicts, and in FRY, including Kosovo, bombing damage has affected villages and towns. Land mines are one of the biggest obstacles to the return on displaced people in Croatia. This has affected both local community well being and potential tourism value.
- **Weakened environmental management:** Institutional impacts of the war include loss of environmental administrative control of Kosovo; a change in management priorities; a loss of income from normal sources, e.g., tourism; loss of linkages with other countries for transboundary environmental protection; curtailment of the national and transboundary activities of environmental NGOs. The threat is that environmental management systems may be so disrupted that environmental

⁸² In Croatia, the disposal of over 50,000 tons of expired pharmaceutical waste is a component of the World Bank Health II Project.

⁸³ "Assessment of the Environmental Impact of Military Activities During the Yugoslavia Conflict: Preliminary Findings". The Regional Environment Center for Central and Eastern Europe, June 1999.

problems cannot be adequately addressed.⁸⁴ The economic destruction and threats to human lives have inevitably absorbed the attention of public policy makers with environmental management and enforcement taking a back seat. This is not unexpected since environment tends to have a low priority in reconstruction processes, but it is of concern because reconstruction places heavy demands on raw materials for reconstruction (e.g., gravel, forests, and water) as has been demonstrated in Bosnia and Herzegovina.

D. NATURAL RESOURCE MANAGEMENT SECTOR

Coastal Zone, Forests, Land, Biodiversity

Coastal Zone Management

8.12 The countries' coastlines are a valuable asset (see Table 8.3 for tourism revenues). On the Mediterranean, Albania contains some of the most pristine and spectacular stretches of coastline in the northern Mediterranean. Uncontrolled urban and squatter developments, inadequate wastewater treatment and high soil erosion are damaging coastal water quality and reducing the potential of tourism. Croatia's coastline has been extensively developed for tourism; however land use planning institutions and policies are stronger than in Albania. Recognizing the importance of the environmental integrity of the coastline, investments in wastewater treatment have been undertaken in all coastal cities.

Table 8.3: International Tourism Receipts^a

<i>Country</i>	<i>International tourism receipts (US\$ millions) in 1996^b</i>	<i>GNP per head (US\$) in 1998</i>
Albania	11	810
Bosnia and Herzegovina	15 ^c	920
Bulgaria	450	1,230
Croatia	2,100	4,520
FYR Macedonia	na	1,290
Romania	20	1,390
FRY	43	n.a.

a. The Economist Intelligence Unit (EIU), Various Country Profiles, 1999-2000. London: The Economist, 1999.

b. The World Bank, "World Development Indicators: 1998." Washington, DC: The World Bank, 1998.

c. In 1997. The World Bank, "World Development Indicators: 1999." Washington, DC: The World Bank, 1999.

8.13 On the Black Sea, which is more heavily industrialized, dredging and deepening the channel at the mouth of the Danube has contributed to beach erosion further south.

⁸⁴ "Draft - Provisional Assessment of Environmental Policy and Management in Kosovo", UNEP/UNCHS Balkans Task Force, 8 November, 1999.

Pollution from the cities of Constanza in Romania and Burgas in Bulgaria has damaged water quality. Bulgaria has made good progress on participatory coastal zone planning and management, within its ongoing constraints of over-development of the coast and further development pressures that have arisen as a result of land privatization.

8.14 Economic recovery will increase environmental pressures on the coasts of both countries. Key strategies to correct the problems must deal with improved wastewater treatment, solid waste treatment, and the development of regulatory frameworks for coastal zone management in each of the coastal countries. It is particularly important for Albania to develop sound land use planning strategies, which are enforced, in order to secure the future tourism value of the coastline.

Forests

8.15 The SEE region contains some of the richest forestry resources in Europe. Forests are important to the economies of all countries, both directly as producers of timber and timber products (Romania, Bosnia and Herzegovina, Croatia, and Bulgaria) and indirectly because of their watershed protection, biodiversity and recreational values. Romania and the northern Balkan Mountain Range have a long tradition of sustainable forest management and well-established forest management institutions. In contrast in the southern Balkan Range there was degradation of forest lands until the Second World War. Since then there have been extensive programs to convert degraded oak coppice to high forest. Under pricing of forest resources continues to be an issue in most of the countries, but reasonably "tight" multi-use forest management plans assure good technical management.

8.16 All countries have faced new institutional and forest resource management challenges. In Albania, growing poverty and social unrest have led to increased illegal timber harvesting, overgrazing and uncontrolled cutting of timber for fuel wood. In Romania, restitution of 300,000ha of forestland to private individuals in 1991, in the absence of a sound regulatory framework, and in an atmosphere of uncertainty about the future, led to widespread destruction of these forests. In Bosnia and Herzegovina and Croatia, the forests were heavily landmined, reducing their economic and tourism value. Romania and Bulgaria are now embarking on much larger forestland restitution programs, which will require very careful management and support.

Land and Soil

8.17 Land management is a problem especially in Bosnia and Herzegovina, FYR Macedonia and Albania, the poorest countries of the region. Land and soil degradation are influenced by: (i) increasing poverty, and reliance of poor rural communities on livestock (mainly sheep and goats); and on fuel wood for heating, which has led to overgrazing and over-harvesting; (ii) the use of marginal lands for agriculture, some converted from forests and natural pasture and steppe; (iii) the management of fisheries stocks and their natural habitats (an issue in the Danube and its delta, the lakes and rivers as well as the seas); and (iv) measures to protect surface and groundwater resources. Land privatization has contributed to soil erosion in some cases because it resulted in a

decline in use of basic land conservation practices (contour plowing, vegetative barriers) that had previously been observed on state-owned land, e.g., Romania. In Bosnia and Herzegovina, the breakdown of the land use management system with the war, has led to exploitation of protected areas, soil erosion and loss of habitat.

Biodiversity

8.18 The SEE region contains some of the richest biodiversity in the Mediterranean and Black Sea Basins, largely occurring in natural marine, wetland, steppe, and forest ecosystems. Despite localized degradation, many of the mountain forests are relatively intact, supporting a diversity of indigenous flora and fauna. One of the primary instruments for preserving biodiversity on a national level, is the designation of protected areas which contain valuable natural resources. Croatia and FYR Macedonia are in the lead in terms of total land under protection (see Table 8.4). In the SEE region, many protected areas are situated on borders. Their ecological viability is reliant on maintenance of protected areas in neighboring countries; effective conservation is thus a regional issue. The region would benefit from collaboration among the countries to address regional environment challenges, including safeguarding trans-boundary resources (e.g., the Neretva Delta shared by Croatia and Bosnia and Herzegovina), and improving resource management (e.g., through better dissemination and application of best practices developed within the region, such as the forest management experience of Romania and Croatia).

Table 8.4: Protected Areas as a Percentage of Land Area

<i>Country</i>	<i>Protected areas as % of land area^a</i>
Albania	3.6
Bosnia and Herzegovina	0.5
Bulgaria	4.5
Croatia	7.0
FYR Macedonia	7.1
Romania	4.6
FRY	5.0 ^b

a. WB Web Environmental Data Sheets:

<http://eca/ecsre/envcopg/default.htm>, UN Protected Area List 1997.

b. Institute for Protection of Nature of Serbia:

<http://www.natureprotection.org.yu/areas.html>.

Potential Regional Natural Resource Management Programs

8.19 The environment presents several opportunities where a multi-country, regional approach could bring more benefits than the execution of individual projects. Biodiversity conservation, forest management, and water pollution control have been the topics of successful regional approaches such as the successfully completed GEF Trans Carpathian Biodiversity Project in which cooperation agreements between the Czech Republic, Slovak Republic, Poland and the Ukraine served as the basis for regional forest ecosystem management. Such an approach could be more broadly applied in the Balkan

mountains to preserve a unique ecosystem. Within South Eastern Europe, the GEF financed Danube Delta Biodiversity Project is utilizing a transboundary cooperative approach for both coastal zone and mountain ecosystem management. Both project have demonstrated that a regional approach leads to greater overall benefits and sustainability, helping to conserve unique ecological and tourist resources of a regional nature.

8.20 With regard to forest management, the region has the advantage of having well established institutions. Cooperation among these, and with Western European forest institutions, is already quite well established. Forest management demonstrates the need for both national and regional approaches, linked together, for effective natural resource management. On a national level, SEE countries need clear frameworks for land restitution, for forest management, resource pricing and taxation in order to recover forest industries and ensure sustainable forest management. The countries need further assistance in updating forest inventory and protection systems, and, for countries with forest land restitution programs, in developing regulations, taxes and incentives, extension systems and forest owners associations. Above and beyond national policies and practices, regional cooperation is essential to avoid the resource exploitation that can result from national policies and lack of incentives, e.g., log export bans, resource taxes, Regional agreement on basic natural resource policies would improve overall resource management. This issue is not limited to SEE countries. In northern Europe consumers of forest products are increasingly requiring certification that these products are produced from sustainably managed forests. Thus, improved management of natural/forest resources will increasingly be necessary in SEE countries in order to maintain access to markets elsewhere in Europe.

8.21 Regional cooperation could influence appropriate pricing of forest resources (as well as water and energy) to encourage more economical use. There is a substantial body of knowledge on how to introduce these higher charges. *However to do this* without imposing undue hardship on the poor will remain a difficult political issue.

E. POLLUTION CONTROL SECTOR: WATER, INDUSTRIAL, SOLID WASTE, NUCLEAR POWER AND SAFETY

Water Resource Management and Pollution Control

8.22 The SEE region is generally blessed with an abundance of freshwater resources (see Table 8.5), although there are spatial and seasonal distribution problems. Flooding is a serious problem in some countries, especially Croatia. In most SEE countries, water resource management is fragmented. Integrated water resource management approaches are not used. Albania has taken the lead in addressing these deficiencies by preparing a Water Resource Management Plan. Croatia is planning to utilize an integrated river basin management approach for water resources of the Sava River. Bosnia and Herzegovina is considering establishing river basin management authorities to manage their water resources.

8.23 Many of the water resources on which SEE countries depend are of a regional nature. Most of the SEE region lies within the Danube River Basin which supports the

supply of drinking water, agriculture, industry, fishing, tourism, power generation, and navigation, and is the recipient of most of the region’s wastewater. Intensive agricultural, industrial and urban uses have created problems of water quality and quantity, and reduced biodiversity in the basin. Transboundary lake ecosystems face similar challenges. Lakes Prespa and Ohrid and their watersheds are shared between Albania and FYR Macedonia. Both are threatened by transboundary water pollution and require cross-country cooperation for solutions. FYR Macedonia has installed wastewater treatment plants to reduce water pollution of Lake Ohrid—the oldest lake in Europe with unique ecosystems. However, municipal wastewater and mining tailings are still discharged untreated from the Albanian shore.

Table 8.5: Water Resources

<i>Country</i>	<i>Freshwater resources (m3 per capita) in 1996</i>	<i>Annual freshwater withdrawals</i>			
		<i>% of total resources used</i>	<i>% for agriculture</i>	<i>% for industry</i>	<i>% for domestic</i>
Albania	13,542	40	76	18	6
Bosnia and Herzegovina	na	na	na	na	na
Bulgaria	2,154	77.2	22	76	3
Croatia	12,870	na	na	na	na
FYR Macedonia	na	na	na	na	na
Romania	1,637	70.3	59	33	8
FRY	na	na	na	na	na

Source: The World Bank, *World Development Report: 1998*. Washington, DC: The World Bank, 1998.

8.24 While water service coverage in most SEE countries is high (over 80 percent piped supply in most urban areas), service quality is generally unreliable. Infrastructure is deteriorating because of inadequate maintenance. Weaknesses in the policy and regulatory frameworks and in the management of water utilities are the main reasons for this deteriorating situation. Wastewater collection coverage is low, generally less than 50 percent in urban areas. Most countries treat only 20 percent of all wastewater produced. Investments are therefore primarily needed in the wastewater sector, but attention needs to be paid that institutional and financial capabilities of utilities be sufficiently strengthened so that investment are sustainable and operate efficiently.

8.25 The water sector has been affected by low institutional capacity to design and prepare reforms. The roles of local and central governments still need to be defined. The reform process is differently advanced in SEE countries. Bulgaria, Croatia, FYR Macedonia and Romania have high service coverage, but there remains a need for comprehensive and consistent reform programs. In Albania and Bosnia and Herzegovina, reforms have been slower and water systems are deteriorating. The key priorities for reform are:

- **Institutional weakness and lack of governance.** Water and wastewater utilities are overstaffed, inefficient, and lack modern management. Utilities have often little autonomy and insufficient control over management parameters. Maintenance and rehabilitation of existing facilities is often neglected, while resources are invested into new facilities that are often over designed and costly to operate.
- **Operational and planning inefficiencies.** Operational inefficiencies, poor planning and lack of maintenance increase costs and result in deterioration of infrastructure. Many systems were poorly designed, with low-quality materials, equipment and construction. Poor maintenance and operation results in inefficient plants, poor water quality, and excessive leakage (UFW of 50 percent and more are not uncommon). Given low level of tariffs, consumers have little incentive to conserve water consumption. Households and industrial units consume more water than their counterparts in Western Europe. This problem is particularly acute in countries where there are no meters.⁸⁵
- **Lack of financial viability.** Low tariffs, high operating costs and poor management have placed many water utilities into financial difficulties. Accumulation of payment arrears is particularly acute in water enterprises. Revenue collection is low, often constituting less than 50 percent of amounts billed. Disconnection of services for non-paying customers is uncommon.

8.26 Many water supply enterprises suffer from water shortages and poor water quality. The water utilities themselves are a major source of water pollution due to discharge of untreated wastewater. Existing institutions, legislation, and policies are not equipped to introduce modern principles of water resource management that would ensure cost-effective wastewater collection and treatment methods.

8.27 Increased private sector participation is an important avenue to improve the performance of utilities in the water sector. There has only been limited participation of the private sector in the water sector in the SEE countries. In larger cities, with more than 200,000 inhabitants, which have adequate regulatory frameworks, private sector participation should be possible, given revenue-earning potentials. For the smaller cities, where there is little possibility for private sector involvement or granting of management contracts to private operators, a policy of outsourcing should be pursued. Private sector participation requires the development of transparent criteria for the selection of providers, the establishment of technical, safety and environmental norms, which the private operators must follow and which can be monitored. It also requires a regulatory framework, which provides for price adjustments and penalties if agreed service standards are not delivered.

⁸⁵ Design standards for investments assumed consumption of more than 250 liters/day/capita in many ECA countries. The design norm in Western Europe is about 130 liters/day/capita.

Solid Waste Management

8.28 Several countries face serious problems with the collection and disposal of solid waste. In Albania, Kosovo, and Bosnia and Herzegovina collection is sporadic, and piles of garbage constitute health hazards. There is little or no adequate storage for hazardous waste, leading to continuous build-up. In Bosnia and Herzegovina medical waste accumulation is especially serious because it served as the depository for such waste in the FRY. Only Croatia has a hazardous waste incineration facility. Throughout the region, wastes are dumped in unsanitary landfills, dumpsites in ravines and valleys; or directly into water bodies. Given the karst nature of much of the region, indiscriminate disposal practices can have serious impacts on groundwater. In Romania, Croatia and Bulgaria progress has been made with developing a solid waste regulatory framework; however problems need to be tackled at a local level where municipalities face financial difficulties and shortage of adequate skills.

Industrial Pollution

8.29 Bosnia and Herzegovina, FYR Macedonia, Bulgaria, FRY and Romania were all heavily industrialized after the Second World War. Most development took place without adequate environmental safeguards or proper siting of the industrial plants; this has resulted in serious environmental degradation and had an adverse impact on health. The environmental impacts of industrial pollution are felt on both a regional and a local level. On a regional level, industrial air emissions, partly coming from northern Europe, are a cause of acid rain which damages forests and aquatic ecosystems. Forests at higher altitude, particularly in Slovenia and Bulgaria, have been damaged by SO₂ (sulfur dioxide) and NO_x (nitrous oxide) emissions from coal-fired power plants and vehicle emissions. There has also been localized damage to forests from copper smelters in Romania. Programs to address this problem (through reforestation with more resistant species and reduction of SO₂ emissions) have been developed in Germany and Poland but are costly.

8.30 Industrial air pollution is also a locally serious problem. Most of the emissions of organic micropollutants and heavy metals are linked to specific industrial enterprises—many of them now with reduced production and consequently reduced emissions. Some SEE countries are initiating air pollution monitoring, surveillance and industrial clean-up activities (Bulgaria, Croatia). The main atmospheric emissions (SO₂, NO_x, CO₂ and methane) have decreased by more than 20 percent in Bulgaria, and air quality monitoring has improved. Lead phase out programs are on going in Bulgaria and Romania.

8.31 With enterprise privatization, some countries have pushed forward with improved practices; in Bulgaria investments for improved environmental performance were agreed upon as part of privatization deals. In Romania progress has been made in the clean-up of fourteen pollution "hotspots", identified in the early 1990s, and since then there has been progress in developing a regulatory framework, in industrial restructuring and in "process" improvements. In Bosnia and Herzegovina, where heavy industry was reduced to 5 percent of its pre-war level, start-up of these antiquated, polluting industries without adequate environmental regulations and enforcement poses environmental risks. In Kosovo, the four BTF high priority "hot spots" as well as the other identified "hot spots"

in Obiliq, Trepca, Mitrovice, Glogovc and Elz Han should be the subject of environmental audits and possible "process" improvements.

8.32 CO₂ emissions, vehicle ownership and sources of electricity vary widely in the region (see Table 8.6). Heavily polluting coal accounts for 85 percent of electricity generation in FYR Macedonia, and one-third or more in Bulgaria, Bosnia and Herzegovina and Romania (Chapter 7 discusses the broader policy implications for energy). In the poorer countries increasing energy prices may be contributing to over-cutting of forests for fuel-wood, as discussed earlier.

Table 8.6: CO₂ Emissions And Vehicle Use

<i>Country</i>	<i>Per capita CO₂ emissions (per capita metric tons) in 1995^a</i>	<i>Motor vehicles (per 1000 people) in 1996^b</i>
Albania	0.6	31
Bosnia and Herzegovina	0.4	24
Bulgaria	6.7	234
Croatia	3.6	196
FYR Macedonia	4.5	142
Romania	5.3	124
FRY	3.63 ^c	163
CEE average	7.6	295
EU average	8.0	447

a. "Europe's Environment: The Second Assessment." Copenhagen: European Environment Agency, 1998.

b. The World Bank, "World Development Indicators: 1998." Washington, DC: The World Bank, 1998.

c. In 1992. The World Resources Institute, UNEP, UNDP, The World Bank, "World Resources: 1996-97." New York and Oxford: Oxford University Press, 1996.

Nuclear Power and Safety

8.33 Management of nuclear power and safety in the SEE countries has transboundary implications. The most serious concern is the management of the old units of Bulgaria's nuclear plant Kozloduy, on the Danube River. The plant includes four VVER 440/320 reactors which lack certain basic safety features. The plant produces nearly half of the electricity consumed in Bulgaria, and the closure of the four reactors would be extremely costly. The continued operation of Kozloduy has implications for Bulgaria's application for membership of the EU. It has been invited to start negotiations in 2000, conditional on agreeing to close the old units of the nuclear plant. The Government has agreed on early closure of units 1 and 2 before 2003, but against acceptable compensation measures for developing alternative sources of power for electricity and implementation of nuclear safety projects for decommissioning, including financial assistance from the EU for the period of 2000-2006. Part of the EU grant assistance is conditional on confirmation of the understanding for closure of units 3 and 4, which has to take place before 2006 at the latest. The Government will complete a time-bound program for decommissioning of units 3 and 4 by July 31, 2000.

Potential Regional Pollution Control Programs

8.34 Current pollution control efforts include the Danube Environment Program, initiated in the early 1990s. The Danube River Basin Program undertook analytical work in the major tributaries, and identified key industrial and urban pollution "hotspots" in the basin.⁸⁶ Improved municipal wastewater treatment capacity; reduction of industrial and non-point agricultural emissions; conservation of wetlands and floodplains; and integrated water resource management were elements of the recommended Program. The Danube Environment Program had only limited impact, in part because national and regional priorities frequently did not coincide, in part because of the large investment requirements (even with better policies) for improved industrial and municipal effluent. The real damage to human health and productivity from this pollution was also difficult to assess. For (mostly) financial and (partly) institutional and social reasons, municipalities and industries have not been able to invest in the clean-up activities. Without concessional funding large increases in utilities charges would be necessary, and few governments are politically ready to implement such increases. For investments, which are agreed to be of high priority, financing packages including concessional funding, will be necessary (Environmental projects in the Baltic countries, and the recent Agricultural Pollution project for Poland, are good examples).

8.35 Restoration of Danube wetlands and reduction of pollution from agricultural run-off and animal waste are less expensive strategies. Riverine and aquatic ecosystems conservation strategies also lend themselves well to transboundary cooperation. Existing programs such as the successful wetland restoration programs ongoing in the Danube Delta can provide guidance.

8.36 Regional coordination is well established in the Carpathians, with regular strategic and operational meetings among the Carpathians countries. A similar arrangement should be established for South Eastern Europe with concessional financing. This has the added advantage of improving communication and understanding. Regional cooperation regarding coastal zone management is also important. The "model" provided by the Lake Ohrid Conservation Project (LOCP), a GEF project now in implementation, between FYR Macedonia and Albania may be useful in this regard. The primary objective of the LOCP is to promote cost-effective solutions to transboundary natural resource management and pollution problems, thus providing a basis for the sustainable economic development of a regional watershed. A Memorandum of Understanding (MOU) between Albania and FYR Macedonia which established in 1996 the Lake Ohrid Management Board (LOMB) governs the conservation activities of the Lake. The LOMB provides a bi-national legal framework for the resolution of transboundary environmental problems. The LOCP project is proving to be successful in developing a regional environmental protection strategy for the watershed based on the principles of cooperation between the two countries and the joint management of the lake and its surrounding resources, e.g., fisheries.

⁸⁶ "Strategic Action Plan for the Danube River Basin 1995-2000," Environment Program for the Danube River Basin, 1995.

8.37 Projects should address improved management of wastewater and solid waste. The focus should be on improving conditions in the areas impacted by war, followed by addressing the areas with significant impact on human health and ecosystems. Restoration and reliable operation of basic municipal services (water, wastewater, refuse collection, electricity) will be necessary, and there will need to be a program linked to improving implementation of charging systems that cover costs. For tourism development, high standard municipal services (which can be fully paid for by the industry) are essential. Pricing policies are especially difficult to address. Adequate cost recovery for utilities is necessary in order not to strain scarce government budgets, to operate and maintain systems adequately and to attract private sector investment, but large sections of the population are now impoverished. So-called "life-line" tariffs may need to be applied to so many people in order to assure basic municipal services that some element of subsidy may still be necessary. This would in turn imply concessional financing of new investments for the coming years.

8.38 Programs to address environmental consequences of war should be based on the need to reduce risks to human health. The immediate priorities are:

- (a) Clearance of unexploded ordnance and land mines based on agreed upon priorities.
- (b) Restore basic municipal services of water supply, sewerage and solid waste collection/disposal.
- (c) Address hot spots of pollution of the Danube, and of reduced economic activity, caused by damage to infrastructure and industry.
- (d) Address environmental damage caused by the refugee crisis (solid waste, water pollution and destruction of forests).
- (e) Incorporate environmental considerations into reconstruction efforts. The reconstruction of industries will require careful environmental impact assessments and application of integrated pollution reduction techniques.

8.39 In terms of industrial pollution, programs to strengthen industrial regulations and pollution charges are well established in Europe; the difficulty will be to encourage these without increasing production costs unduly. Programs should improve environmental monitoring and measurement capabilities particularly in FRY and Bosnia and Herzegovina. Environmental audits of identified industrial "hot spots" should be conducted and clean technologies introduced.

8.40 The nuclear safety issue in Bulgaria needs comprehensive understanding, particularly of the real costs of closure and the support Bulgaria may need to develop alternative energy sources. Lessons from other countries attempting to address nuclear safety with financial assistance from European countries would be useful.

F. ENVIRONMENTAL POLICY, LEGISLATION AND INSTITUTIONS

8.41 Policy, legal and institutional frameworks in the SEE countries are similar to the ones in Central and Eastern European countries. There are environmental policy statements, constitutional recognition of the right to a healthy environment, a framework environmental law, environmental impact assessment legislation, and institutions for environment (usually ministerial level). Most SEE countries have ratified numerous international environmental protection treaties (see Table 8.7). Apart from bilateral agreements, several multilateral frameworks offer the SEE countries possibilities to cooperate in the environment sector including: Long Range Transboundary Air Pollution; Protection and Use of Transboundary Watercourses and International Lakes; Environmental Impact Assessment in the Transboundary Context; Transboundary Effects of Industrial Accidents; Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters. Frameworks for regional environmental cooperation are also offered by the Central European Initiative (CEI), Black Sea Economic Cooperation (BSEC); the Convention on Cooperation for the Protection and Sustainable Use of the Danube River (DRPC).⁸⁷ (Table 8.8)

Table 8.7: Government Commitments/Treaties Signed ^a

<i>Country</i>	<i>Convention on Biological Diversity ^b</i>	<i>Climate change</i>	<i>Ozone layer</i>	<i>CFC control</i>	<i>Law of the Sea</i>
Albania	1994	1995	..	..	..
Bosnia and Herzegovina	..	..	1992	..	1994
Bulgaria	1996	1995	1991	1991	1996
Croatia	1997	1996	1992	1991	1994
FYR Macedonia	1997 ^c	..	1994	1994	1994
Romania	1994	1994	1993	1993	1997
FRY	..	..	..	..	..

a. The World Bank, "World Development Indicators: 1998." Washington, DC: The World Bank, 1998.

b. The World Bank, "World Development Indicators: 1999." Washington, DC: The World Bank, 1999.

c. The Convention has been ratified by all countries except FYR Macedonia and Romania. UNEP/UNCHS Balkans Task Force (BTF). "Assessment of the Damage to Biodiversity in Protected Areas of the Federal Republic of Yugoslavia." October 1999.

d. UNEP/UNCHS Balkans Task Force (BTF). "Assessment of the Damage to Biodiversity in Protected Areas of the Federal Republic of Yugoslavia." October 1999.

⁸⁷ A Framework on Environmental Recovery for South Eastern Europe in Support of the Stability Pact, ECE SECI Conference, Vienna, 4 October 1999.

Table 8.8: Participating Countries in Selected Multilateral Environmental Frameworks

	<i>ECE Air Convention</i>	<i>ECE Water Convention</i>	<i>ECE EIA Convention</i>	<i>ECE Accidents Convention</i>	<i>ECE Convent. Public Particip.</i>	<i>CEE</i>	<i>BSEC</i>	<i>Alpe- Adri a</i>	<i>DRPC</i>
Albania		Ratified	Ratified	Ratified	Signed	Yes	Yes		
BiH	Ratified					Yes			
Bulgaria	Ratified	Signed	Ratified	Signed	Signed	Yes	Yes		Signed
Croatia	Ratified	Ratified	Ratified		Signed	Yes		Yes	Ratified
Romania	Ratified	Ratified	Signed		Signed	Yes	Yes		Ratified
FYROM	Ratified					Yes			

8.42 Public participation in environmental matters has developed though difficulties remain in some countries. NGOs in FRY have had their activities curtailed, and some NGOs have had their cross-border activities halted by the conflict.⁸⁸ Elsewhere, new approaches to increase NGO and civil society participation in local and regional environment decision making are being demonstrated, e.g., the Lake Ohrid Conservation Project, and the Romania and Bulgaria environment movements more broadly, which can serve as models for the region.

8.43 Bulgaria and Croatia have made most progress in developing sound regulatory and institutional frameworks. Bulgaria has a well-established environmental monitoring system and environmental assessment system, with public consultation, in place. Croatia also has good technical capacity for monitoring and regulations, is pursuing environmental education and public awareness programs, and has established an "Environmental Label" system to promote clean technologies. In Romania there is still progress to be made in integrating and clarifying the responsibilities of the different agencies responsible for environmental monitoring and management. Improved consistency in environmental regulations, across the region, would assist countries with EU accession programs.

8.44 Governance and enforcement are issues in all countries, but particularly in Albania and Bosnia and Herzegovina. Until the political situation is more stable it will be difficult to make much progress. Public awareness programs and the increasingly active NGO movement are most likely, in the interim, to be successful approaches to improving environmental management.

Potential Regional Environmental Management Programs and Projects

8.45 A central objective of SEE environmental program and projects should be to promote institutional and policy frameworks which address environmental priorities within existing economic constraints, particularly those with high social values (e.g.,

⁸⁸ "Assessment of the Environmental Impact of Military Activities During the Yugoslavia Conflict."

human health and water resources) and high economic costs (e.g., deforestation and coastal management). In addition, clear, transparent and consistently applied regulatory frameworks are key, including clarity regarding responsibilities for environmental liability for industries which are privatized. There also needs to be clear and enforced land use-planning legislation, especially for tourist developments. Technical and financial support for the SEE countries is essential, as research indicates that generally significant improvements in environmental management are difficult to achieve at per capita incomes below US\$ 3,000. External support through concessional funding may, therefore, be necessary to improve environmental management in these areas over the near term. Improved environmental management also contributes to reduced poverty and increased opportunity (for natural resource management) and improved health and welfare particularly among lower income groups (for pollution management and improved water and sanitation).

8.46 There is scope for learning from "best practices" within the region regarding institutional management. Regarding development of regulatory frameworks and monitoring systems for environmental management, Bulgaria has much to share with the other countries of the region. It has also made good progress on developing programs for addressing environmental liability under privatization and investment programs. Croatia may be the regional "leader" in protected area management, while Romania has made good progress in developing community based approaches to natural resource management. The progress of Albania in these areas has been modest by comparison. Transparency is a key element in combating corruption, as is the development of NGOs and broader civil society. Romania, Bulgaria, and FYR Macedonia have the most flourishing NGO community.

G. CONCLUSION

8.47 This Chapter has outlined the environmental challenges facing the region that are regional in nature, or that have arisen as a result of conflicts and instability in the region. Regional issues arise in three main areas: natural resource management, pollution, and institutional and policy framework. Regarding natural resource management, the Chapter argues that forestry management and biodiversity conservation would benefit significantly from regional cooperation among countries in the SEE region, especially since many natural resources span more than one country. Water resource management and cooperation are also important, especially due to the special role the Danube plays in the region. Improved management of wastewater and solid waste are also essential, especially because of the deleterious effect that regional conflicts have had on the environment. Finally, as moving towards a closer integration with Europe will require substantial improvements in environmental management, institutions and regulations, there is a clear role for technical and financial support in these areas by the international community.

Table 8.9: Selection Criteria Matrix for SEE Regional Environmental Projects

	<i>Regionally Joint Project</i>	<i>Multi-Country Project</i>	<i>National/Bilateral Project with Regional Impact</i>
<i>Agreement among SEE countries, most concerned</i>	On location, ownership, project implementation, operation.	On cooperation, mutual control of supervision, peer pressure.	Commitment of the project government to share information with other countries in the region.
<i>Sectoral policy/institutional reforms</i>	The project fits into the national environment sectoral policy acceptable to IFIs.		
	<ul style="list-style-type: none"> • Introduction of European/international standards. • Economies of scale. 	<ul style="list-style-type: none"> • Regional and European legal harmonization. • Efficiency improvement. • Synergy effect. 	<ul style="list-style-type: none"> • Appropriate pricing policies for natural resources. • Pilot character. • Efficiency increase. • European/international standards. • European integration: EU compatible institutions. • “Polluter pays” principle. • Transparent regulatory procedures.
<i>Emergency character</i>			
<i>Bankability criteria</i>	<ul style="list-style-type: none"> • Improves people’s livelihood through sustainable use of natural resources. • Reduces risks to human health due to environmental factors. • Reduces vulnerability to environmental risks and natural disasters. • Enhances environmental quality and natural resource management. • Maintains the global ecosystem. 		
<i>Other</i>	Project conditions on a case by case basis.		
	<ul style="list-style-type: none"> • At least two countries. • Joint investment. 	<ul style="list-style-type: none"> • At least three countries. • Synergy from the harmonization of several national projects. 	<ul style="list-style-type: none"> • Sectoral reform with regionally demonstrative impact and/or part of a regional/Trans-European network.