

AZERBAIJAN: COUNTRY ENVIRONMENT NOTE

ABBREVIATIONS

ADB	–	Asian Development Bank
CDM	–	Clean Development Mechanism
CEN	–	Country Environment Note
CPS	–	Country Partnership Strategy
EIA	–	environmental impact assessment
EU	–	European Union
FAO	–	Food and Agricultural Organization of the United Nations
GDP	–	gross domestic product
GEF	–	Global Environment Facility
GHG	–	greenhouse gas
IFI	–	international financial institution
JSC	–	joint stock company
MEI	–	Ministry of Economy and Industry
MENR	–	Ministry of Ecology and Natural Resources
NEAP	–	National Environmental Action Plan
NGO	–	non-government organization
OECD	–	Organization for Economic Cooperation and Development
PIP	–	public investment program
SAWM	–	State Amelioration and Water Management (JSC)
SEE	–	State Environmental Expertise
SEP	–	State Environment Program
SOCAR	–	State Oil Company of Azerbaijan
UNDP	–	United Nations Development Programme
UNECE	–	United Nations Economic Commission for Europe
UNFCCC	–	United Nations Framework Convention on Climate Change

Contents

A.	Introduction	1
1.	Geo-political and Macroeconomic Context	1
2.	Physical Environment	2
3.	Azerbaijan’s Environment and its Changing Conditions	3
B.	Priorities and Actions in Support of Environmentally Sustainable Development.....	8
1.	Priorities.....	8
2.	Institutional Developments	9
3.	Environmental Legislation	11
4.	Sectoral strategies and programs	13
5.	Spending and Financing for Environment-related Activities.....	16
C.	ADB and other Donor Programs and Projects on Environment and Climate Change.....	17
D.	ADB’s Strategies and Business Plans and Environment-related Recommendations	19

A. Introduction

1. This Country Environment Note (CEN) will provide inputs into Asian Development Bank's (ADB) Country Partnership Strategy (CPS) for Azerbaijan for 2014-2018. The main purpose of the CEN is to ensure that the CPS takes adequate account of environmental concerns considered vital by Azerbaijan's authorities, while suitably reflecting ADB's strategies and policies. The CEN selects and interprets the most relevant information available on the environmental situation in Azerbaijan.¹ In the process, it updates ADB's Country Environmental Analysis (CEA) for Azerbaijan, completed in 2005.

1. Geo-political and Macroeconomic Context

2. Azerbaijan's economic transition has been remarkable, particularly in the last decade. After regaining its independence in 1991, the country initially struggled, with the poverty rate close to 50% and the government starved for funds as late as 2000. Since then, the economic fortunes of the Caucasus' largest country have improved dramatically in response to a number of policy reforms and the revival of the oil and gas sector. The latter, supported by foreign direct investment (FDI), was bolstered significantly in 2006 by the opening of the Baku–Tbilisi–Ceyhan (BTC) pipeline.²

3. Today, due in large part to the flow of oil revenue, poverty has been reduced to 6%, and the government has been able to support the modernization of the country's public infrastructure.³ Along with these significant positive benefits, the environmental repercussions of sector activities have been major, starting with the huge legacy of past oil-based pollution, neglected during the Soviet days, to present-day concerns about ensuring the environmental safety of off-shore and on-shore operations.

4. One of Azerbaijan's main challenges going forward is to utilize its oil revenue for the greater public good and for future growth, including tackling pollution and poor water and waste management. Such a challenge must be undertaken as part of an overall package of reforms, including widening the economic base of the country and addressing substantial income inequality and economic imbalance between Baku, the country's capital and largest city, and the rest of the country.⁴ The countryside has been a second priority, with the share of the rural (agriculture and other) activities in the value of the country's gross domestic product (GDP) at 7.5% (from more than 15% a decade ago).⁵

¹ This includes recent comprehensive environmental reviews by the World Bank and the UN Economic Commission for Europe.

² The 2010 production of 379 million barrels of oil puts Azerbaijan in the 22nd place among world, slightly behind Kazakhstan. It ranked No. 19 in the world in terms of proven oil reserves. About 80% of the oil output is produced offshore, and approximately 85% of oil produced is exported. There has been an accompanying rapid increase in the production (and now export) of natural gas.

³ The initial years of independence saw serious underinvestment in public environmental infrastructure (municipal water supply and wastewater), from which most former Soviet republics are still recovering.

⁴ Second-tier cities (Ganja, the second largest has a population of about 300,000 and the rest are much smaller) have not participated in the oil boom until very recently (through water supply and sanitation projects), but the economic base of these second-tier towns continues to be weak.

⁵ There is still a modest strategic base for diversifying the country's economy. The State Program on the Socio-Economic Development of the Regions (now in its second phase 2009-2013) provides mainly an employment- and income-generation vision for the country's secondary towns, with a relatively modest resource-management and environmental content. However, for now it remains the sole guide to official policy on local economic development.

5. Until now, the trade-off in Azerbaijan has been largely between the depletion of non-renewable hydrocarbon resources, conceivably with good prospects of extending Azerbaijan hydrocarbons' life through technological advances and discovery, and the reinvestment of the temporary surplus in infrastructure rehabilitation and expansion. ADB has participated in this process and it is possible that this will remain the appropriate position to take for some more time.

6. However, the country now has an opportunity to ride the wave of greater public environmental spending and introduce good habits along the way as part of its recent balance of priorities. This time of cresting oil revenue offers an appropriate moment to consider inter-temporal allocation of the revenue surpluses. The role of natural resources stocks and the rate of their depletion or conservation and build-up, in the case of renewable ones, should increasingly occupy a more prominent place.

7. Indeed, the country is in a good position to avert further degradation of its natural environment. Public financial transfers towards the countryside, along with repairs and upgrading of the power and gas infrastructure, appear to have largely stabilized the environmental situation in the countryside, averted some pressure on the country's forests, and may have halted further spread of salinity. However, much more than just fiscal transfers are needed. As discussed later in this document, the policy and regulatory framework does not sufficiently encourage conservation and investment.

2. Physical Environment

8. Azerbaijan is part of the Caucasus region, internationally recognized as one of the 25 most important global biodiversity hot spots. The high rate of endemism and a broad range of habitats are the result of varied terrain and many different climatic conditions.

9. Five ecological regions are commonly distinguished in Azerbaijan: the Greater Caucasus Mountains, the Lesser Caucasus Mountains, the Kura-Aras valley and floodplain, the Talysh-Lenkaran zone, and the Caspian Sea.⁶ Alternative classifications (e.g., Agayeva et al. 2009) refer to the country's seven ecosystems: forests, high mountains, dry mountain scrublands, steppe, semi-desert, wetlands, and coastal.

10. About 60% of Azerbaijan's land area is considered mountainous (normally lands above 1,300 m above sea level). Semi-desert ecosystems, comprising most of the Kura-Aras plain up to 1,300 m above sea level, cover 32% of Azerbaijan's territory and are considered the most fragile ecosystems in Azerbaijan. Forests are estimated to occupy about 11% of the land area, and agricultural lands – arable land (both irrigated and rainfed) and pasturelands – make up 55% of the territory. The country also has 871 km of coastline.

11. Sharp changes of altitudes reflecting the topography of the Greater and Lesser Caucasus and the location of the Kura-Aras lowlands⁷ explain the climate, which ranges widely from subtropical to temperate, and even alpine. The precipitation is low overall—less than 400 mm over 65% of the country—but highly uneven though closely correlated with elevations.

⁶ Nakhchivan is often listed as a separate (sixth) ecological zone. ADB's water supply project in Nakhchivan has generated information about some of that autonomous republic's environmental conditions.

⁷ Elevations range from 4,480 m in the Greater Caucasus (Bazarduzu crest) to –26.0 m (Caspian Sea level).

12. The water resources availability in Azerbaijan is estimated to be only about 15% of the total of the South Caucasus region. Water per area and per person in Azerbaijan is 7.7 and 8.3 times less than in Georgia, and 2.2 and 1.7 times less than in Armenia, respectively. Some three quarters of surface water of Azerbaijan flows in from outside the country.

13. Azerbaijan's rivers play a vital part in the life and economy of a "dry" (on the whole) country. There are 8,359 rivers in the Republic, but only two of them (Kura and Aras) are longer than 500 km. The proliferation of smaller rivers (as well as the transboundary nature of the Kura and the Aras) has important management consequences.

14. During Soviet times, a series of multi-purpose reservoirs were constructed for energy production, irrigation and water supply (in the middle of the last decade, agriculture accounted for about three quarters of total water withdrawals). In all, there are some 50 water reservoirs.

15. Groundwater resources are mainly restricted to the foothills and inter-mountain plains of the Greater Caucasus, Lesser Caucasus, Nakhchivan and Talysh. The total groundwater resource is estimated at 24 million m³ (8.8 km³ p.a.). At present, 5 million m³ per day are exploited, representing about 5% of the total water use in the country.⁸

16. In addition, some 250 wetland areas in the country play an important role in flood mitigation and water conservation. The largest one is the Sarisu wetland in Kura-Aras, with an area of 65.7 km², holding an estimated 59.1 million m³ of water. Two of the wetlands (Ag-Gol and Ghizil-Agaj) are Ramsar sites.

3. Azerbaijan's Environment and its Changing Conditions

17. After severe setbacks during the initial years of independence, when a combination of underfunding and emergence of bad habits (e.g., cutting of trees to make up for erratic or discontinued power supply), there are signs of improvement, especially in the protected realm.

18. However, serious environmental challenges remain, with some of the most serious problems taking place outside the areas given some degree of official protection. This notably includes the substantially denuded and water deficient Kura-Aras floodplains (of which the heavily populated Absheron Peninsula is an extension). One particular problem is industrial pollution, which is most visible around the former Soviet petrochemical capital of Sumgayit (just north of Baku). Industrial pollution has shaped recent environment-related action and given it a distinctly industry- and urban-based character, in part reflecting also the country's high level of urbanization.⁹

19. Elsewhere, specific environmental challenges center around the transboundary nature of Azerbaijan's two principal rivers (which complicates efforts to improve the quality of their waters), the role of coastal ecology absent in the landlocked countries of Central and West Asia. The country's main environmental trends are described in more detail below.

⁸ Groundwater is mainly used for irrigation (78%), while 3% is used by industry and 19% for water supply to provincial towns and rural areas.

⁹ The population of greater Baku, together with the rest of Absheron Peninsula, accounts for almost a third of the country's current population of about 9 million.

20. **Slight increase in forest coverage.** Forest coverage in Azerbaijan increased slightly between 2000 and 2010 (see Table 1). At least part of this increase can likely be attributed to a 35% decline in illegal logging and stricter controls over forestry.

21. **Continued degradation of pasturelands.** A large percentage of the country's pasture and irrigated lands continue to be poorly managed (or not managed at all), resulting in degradation or outright loss of that resource (e.g., to salinity). These problems have their roots in Azerbaijan's transition to a post-Soviet economy. During this period, pasturelands, which were previously managed by collective farms under a controlled use of the pasture resource, were transferred into communal ownership. Local governments were made to provide pastureland free of charge.

Table 1: Land Use in Azerbaijan¹⁰
(in '000 ha)

	2000	2005	2007	2008	2010
Total Land Area	8,660.0	8,660.0	8,660.0	8,660.0	8,660.0
Agricultural Lands	4,740.4	4,758.6	4,756.5	4,756.7	4,766.8
Arable Lands	1,825.6	1,843.2	1,854.0	1,860.2	1,884.1
Land under Permanent Crops	236.8	221.5	224.7	227.5	227.4
Pastureland	2,678.0	2,693.9	2,677.8	2,669.0	2,655.3
Non-agricultural lands	3,919.6	3,901.4	3,903.1	3,903.3	3,893.2
Industry, Road	395.1	365.3	351.5	352.2	350.1
Protected Areas	192.4	288.6	291.5	343.9	393.5
Forests	1,037.4	1,037.8	1,038.8	1,038.8	1,040.7
Water Bodies	150.2	142.5	146.7	146.7	147.1
Other Lands	2,144.5	2,067.2	2,075.0	2,021.7	1,961.8

Source: State Statistical Committee based on data by State Land and Cartography Committee

22. Subsequently, pasturelands, which occupy nearly a third of the overall land area in the country, became overgrazed and degraded. Sheep grazing in the winter ranges and the steppes, along with the semi-deserts of the eastern Caucasus, has nearly tripled in the past decade. Overgrazing threatens steppe, subalpine and alpine ecosystems in the Greater Caucasus, East Lesser Caucasus, and Iori-Mingechevir zone. The result has been reduced species diversity and widespread habitat degradation and erosion.

23. **Stabilization and expansion of protected realm.** The protected realm of Azerbaijan constitutes nearly 893,000 hectares (10.3% of the country's land area), a substantial increase from the beginning of the decade. Supported by the Law on Specially Protected Natural Areas and Objects (2000), Azerbaijan's protected area system currently comprises: 9 national parks;¹¹ 11 strict nature reserves; 20 nature preserves (restricted area) (*zakazniki*); 10 hunting areas; and a number of state natural sanctuaries, nature monuments, botanical gardens, dendrological parks, and health resorts.

¹⁰ This table presents official data on the composition of the country's land resources by designated use. These may well differ from those of actual use, for which reliable information is less readily available and differs even more from (but are not unrelated to) the boundaries of ecosystems defined in biological rather than administrative terms. Nonetheless, the totals do provide orders of magnitude.

¹¹ National parks are biologically unique places restricted to ordinary tourism but open to authorized research and ecotourism.

24. **Persistently poor water quality.** The Soviet-era establishment of polluting industries in the watersheds of the Kura and Aras rivers is at the root of serious pollution of these major rivers. Some of these problems are transboundary in nature, with both rivers emanating outside the country. Growing pollution levels in smaller rivers is more recent, entirely local in origin, and is until now still poorly addressed.¹² The capacity of operating treatment plants continues to fall well short of the wastewater produced, but a wastewater treatment upgrading program is underway, in most cases supported by Azerbaijan's development partners. Serious problems of groundwater pollution and contamination have also existed for many years on the Absheron Peninsula, linked overwhelmingly, but not only, to oil production.

25. **No significant reversal in the loss of arable land.** Extensive areas of Azerbaijan, including arable lands, are affected by desertification and degradation. Estimates of around 40% exist for all lands affected by erosion [42.5% (3.7 million ha), quoted in Agayeva 2009; see also MENR. 2002]. Approximately 40% of irrigable land is affected by salinity. Irrigation's share of total water abstraction increased from 42% in 2002 to 46.6% in 2008.¹³ Water losses during transportation remain largely unchanged at around 32%. Improving these conditions is crucially dependent on the progress in land reclamation and rehabilitation efforts by the State Amelioration and Water Management (SAWM) Joint Stock Company and continued agricultural reforms.

26. **Improvements in the quality of the Caspian coastal waters.** Pollution by petrochemical products, other industrial discharges, and untreated municipal wastewater have been a threat to coastal waters, traditionally under the greatest pressure along the urbanized and industrialized Absheron coast.¹⁴ Recent improvements reflect pollution control measures implemented especially in Absheron peninsula, and improved practices adopted by the oil sector.

27. Protection and rehabilitation of sturgeon fishing was among the top priorities of the 1997 National Environmental Action Plan (NEAP). In the 1960s, about 20,000 tons of sturgeons were harvested annually in the Caspian Sea as a whole and in its tributaries. Today, the annual Caspian catch is about 1,000 tons, with the dramatic decline in the catch mainly the result of widespread poaching found in all Caspian countries.¹⁵ A temporary ban on sturgeon fishing might come into force, as sturgeon farms built in the last decade cannot compensate for depletion caused by poaching.

28. **Stagnating or deteriorating air quality in Baku.** There is a significant dilution of the pollutants in the "city of the wind," and there has been a major increase in the total air emissions by mobile sources. There has been a notable expansion of the transport fleet in Azerbaijan during the last decade (see Table 2) that has largely mirrored the growth of the economy. This growth has typically been concentrated in the capital and other principal cities and has outstripped the development of urban road and pedestrian infrastructure, along with urban traffic

¹² The proliferation of smaller rivers has also acquired additional significance recently with Azerbaijan's growing interest in renewable energy. Up to 200 sites that could host mini-hydro plants have been identified (in an economically feasible way).

¹³ The Aran region (mainly the lowlands of the Kura river basin) accounts for 60% of this amount.

¹⁴ Fifty-six percent of the country's population lives within 100 km of the coast.

¹⁵ At the current market price of black caviar of around \$8,000-10,000/kg, the scale of wealth destruction (or its diversion to the poachers of the Caspian Sea) becomes clear. The economics of caviar worldwide (and in Azerbaijan) has begun to change more recently with the emergence of sturgeon farming in several European countries and in the Far East. By 2010, French production alone reached 20 tons p.a.

management. It has also run well ahead of parallel or offsetting efforts to modernize public transport and to avoid acute congestion and pollution problems.

Table 2: Vehicle Fleet in Azerbaijan
(in '000 units)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	440.6	451.6	457.4	511.5	554.0	612.1	690.0	773.3	860.0	925.9
Trucks	78.6	77.1	76.9	79.0	80.9	90.9	97.4	110.4	113.1	117.4
Buses	16.8	17.3	17.4	18.8	21.0	26.7	27.5	28.1	29.3	29.9
Cars	332.0	343.0	350.6	400.4	439.1	479.4	549.0	616.9	700.1	759.2
Motorcycles	6.4	6.7	8.3	7.3	5.0	3.6	3.4	2.8	2.3	2.0
Others	13.3	14.3	12.5	13.2	13.2	15.0	16.2	18.0	17.5	19.3

Source: State Statistical Committee, Statistical Yearbook 2002, 2008, Environment in Azerbaijan 2009.

29. Correspondingly, emissions without carbon dioxide (CO₂) from mobile sources, especially those of particulate matter, have been growing (see Table 3) in spite of a younger and less polluting vehicle fleet (but continued imports of second-hand vehicles). Only the relatively good dilution of air pollutants has kept average particulate and nitrogen oxide (NO₂) concentrations from exploding.

Table 3: Total Emissions of Pollutants into the Air
(in '000 tons)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total (w/out CO ₂)	908.1	1,000.0	620.7	837.9	975.3	1,054.3	875.1	969.9	922.7	..
Stationary sources	515.4	577.0	217.4	425.9	539.8	557.9	344.2	385.9	280.7	300.0
% of total	57.0	58.0	35.0	51.0	55.0	53.0	39.0	40.0	30.0	..
Mobile sources	392.7	423.0	403.2	412.0	435.5	496.4	530.9	584.0	642.0	..
% of total	43.0	42.0	65.0	49.0	45.0	47.0	61.0	60.0	70.0	..

Source: UNECE. 2010 quoting State Statistical Committee, Statistical Yearbook 2002, 2008, Environment in Azerbaijan 2009.

30. In contrast to the situation with mobile sources, existing data suggest a gradually improving environmental performance (in terms of local pollutants) of the power sector (see Table 4). However, there is a trend of increasing CO₂ emissions linked to greater oil and gas production and a revival of some industries, such as smelting and cement. Around three-quarters of total emissions from stationary sources are registered in Baku. In all, the four major cities (Baku, Mingchevir, Sirvan and Sumgayit) account for 70% to 95% of total emissions from stationary sources.

31. **Climate change and its anticipated consequences.** Azerbaijan is vulnerable to the adverse effects of climate change mainly due to the large number of people engaged in the agriculture sector and natural resources, and its vulnerability to sea level rise. Temperatures increased 0.34°C from 1961 to 1990 (baseline year), and increased an additional 0.41°C in the ensuing decade. For the past 10 years, rainfall levels decreased by 9% across the country compared to the baseline year, with the higher decrease of 14.3% in Kura-Araz Lowland. In the last 40 years, the Caspian Sea has experienced the most intensive and prolonged rise in the

history of instrumental observation in the country, with future projected rising levels to cost the country \$4.1 billion by 2040–2050.¹⁶ Evidence suggests that Azerbaijan will continue to become drier this century and sea levels will continue to increase. Temperatures are expected to rise by 1.0 to 1.6°C by 2050 and by 4.1 to 4.5°C by 2100 compared to the baseline.¹⁷

Table 4: Air Pollutant Emissions from Stationary Sources and their Composition

Years	Air pollutant emissions total without CO ₂	Including:				
		Particulates ('000 tons)	Gaseous and liquid matter ('000 tons)	Of which:		
Sulfur Dioxide (SO ₂)	Carbon Monoxide (CO)			Nitrogen Oxides (NO ₂)		
2000	515.4	19.2	496.2	35.1	26.3	24.2
2005	557.9	28.2	529.7	13.8	26.1	25.8
2007	385.9	28.4	357.5	9.2	25.3	23.1
2008	295.0	31.3	263.7	8.0	37.4	33.6
2009	300.0	19.8	280.2	4.3	27.6	24.2
2010	214.8	19.3	195.5	2.2	27.2	19.8

Source: UNECE 2010 quoting State Statistical Committee, Statistical Yearbook 2002, 2008, Environment in Azerbaijan 2009 and Ministry of Ecology and Natural Resources.

32. The already growing water deficit will be exacerbated by the expected change in climate. The current water deficit of about 5 km³ is projected to grow to 9.5 km³–11.5 km³ by around 2050. Surface water is projected to decrease by 23% from 2021 to 2050, and water resources are predicted to decrease by 29% from the baseline by the end of the century. These changes reflect a combination of changes in precipitation and increase in evapo-transpiration due to increased temperature. This could lead to water shortages three to four times higher than in the baseline year. A series of measures aimed at significantly improving the water resources management in the country's agriculture and power sector—the latter expected to make greater use of water in the future—are required to manage anticipated climatic changes. Further anticipated adverse impacts include a rise in the level of the Caspian Sea, necessitating investments in coastal management infrastructure and potentially relocation of facilities, adverse impacts on urban mortality resulting from increased temperatures, and a possible return of malaria, once common in parts of the country.

33. **Greenhouse Gas Emissions Profile.** Azerbaijan's greenhouse gas (GHG) emissions totaled 48.2 million tons of carbon dioxide equivalent (tCO₂e) in 2010. Azerbaijan contributed to only 0.15% of the world GHG emissions. In 2010, methane (CH₄) accounted for 48.82% of the total GHGs, followed by CO₂ at 46.92%, nitrous oxide (N₂O) at 3.85% and by other fugitive emissions (i.e., HFC, PFC, SF₆) by 0.40%. In 2009, the energy sector contributed to most of the emissions (78%), followed by agriculture (12%) and waste (4%). Within the energy sector, fugitive emissions contributed 48% of the GHG emissions, electricity and heat contributed 26%, other fuel combustion contributed 15%, transport contributed 10%, and manufacturing and construction contributed 3%. After dropping from the peak of 96.19 million tCO₂e in 1991, Azerbaijan's GHG emissions has been on the rise; methane became the most dominant GHG

¹⁶ Government of Azerbaijan. 2010. *Second National Communication to the United Nations Framework Convention on Climate Change*. Baku.

¹⁷ United Nations (UN). 2011. *Regional Climate Change Impacts Study for the South Caucasus Region*. Tbilisi.

by 2009 (see Table 5).¹⁸ The transport sector registered the biggest growth in emissions as it surpassed its 1991 all time high in 2005 at 5.12 million tCO₂e (see Table 6).

Table 5: Azerbaijan GHG Emissions Profile by Gas

Year	Total GHG Emissions (million tCO ₂ e)	CO ₂ (million tCO ₂ e)	CH ₄ (million tCO ₂ e)	N ₂ O (million tCO ₂ e)	Fugitive Gas (i.e. HFC, PFC, SF ₆) (in million tCO ₂ e)
1990	68.3	47.3	20.0	0.99	0.04
1991	67.6	46.8	20.0	0.8	0.04
1995	40.8	29.5	10.85	0.36	0.04
2000	38.0	26.2	11.4	0.36	0.04
2005	46.9	32.1	14.4	0.36	0.18
2009	38.0	21.3	16.11	0.62	14.0
2010	37.2	20.9	16.0	0.31	12.7

Sources: 2nd National Data on Climate Change Framework Convention; Inventory report, 3rd National Data on Climate Change Framework Agreement; and State Statistics Committee report on F-gases.

Table 6: Azerbaijan GHG Emissions Profile by Source

Year	Electricity & Heat	Manufacturing and Construction	Transport	Other Fuel Combustion	Fugitive Emissions	Energy (Total)
1990	28.75	16.01	3.69	16.67	13.84	78.96
1991	23.26	15.32	4.1	15.62	25.53	83.82
1995	15.22	6.95	3.07	7.23	6.47	38.94
2000	17.00	4.38	2.05	6.52	21.07	51.02
2005	17.42	3.51	5.12	6.98	11.91	44.94
2009	12.18	1.25	4.54	6.93	21.9	46.08

Source: World Resources Institute. 2013. Climate Analysis Indicator Tool 2.0.

B. Priorities and Actions in Support of Environmentally Sustainable Development

1. Priorities

34. There is a history of environmental prioritization in Azerbaijan, embodying the views of many in the government, its technical collaborators and, in some cases, non-governmental organizations (NGOs).¹⁹ There has been no shortage of policy reflection and attempts to prioritize, reflecting either recent progress or emergence of new trends.

35. In the strategies and plans described below, the priorities include addressing: (i) the legacy of past petroleum and industrial pollution concentrated mainly in the Absheron Peninsula;²⁰ (ii) continued pollution of the principal surface water bodies, including the Kura and Araz rivers, both by transboundary and domestic sources; (iii) inadequate household and hazardous waste management and a legacy of unsafe disposal of hazardous waste; (iv) degradation of agricultural lands and pasturelands; (v) threats to the ecology of the Caspian

¹⁸ One of the main sources of CH₄ emissions were the oil and gas fields at the Absheron Peninsula where venting of the low pressure associated gas were a long standing practice at the offshore oil production sites in Azerbaijan.

¹⁹ The government typically seeks technical advice from the academe, the members of which often establish NGOs to widen their employment opportunities.

²⁰ It is worth noting here that mining and primary processing, long dominated by alumina and aluminum processing in Ganja and Sumgait, has recently been showing signs of revival, especially in Ganja. With this gradual recovery, attention may need to return to the pollution by these sources, somewhat neglected in recent years.

coast; (vi) air pollution and greenhouse gas emissions by stationary (and increasingly, mobile sources); and (vii) pressure on the country's biodiversity.

36. The earliest strategic document of note was the NEAP for 1998–2003. Under NEAP influence, Local Environmental Action Plans were introduced in the country, involving public participation and stakeholder dialogue and assistance to local and regional authorities with policy formulation and priority-setting.

37. Despite the merits of the first NEAP, Azerbaijan chose not to renew it and instead developed new national environmental strategies and action plans. Among the most important of these is the State Program on Poverty Reduction and Sustainable Development (SPPRSD), which covers 2008-2015 and serves as the overarching economy-wide planning document. Although poverty reduction is its core, SPPRSD also addresses environmental concerns. One of its nine goals (goal VII) is “improving the environmental situation and ensuring sustainable environmental management.” In addition, SPPRSD defines actions aimed at ensuring reliable water supply and sanitation concerns and links them to the achievement of the Millennium Development Goals (MDGs). Environmental concerns also appear under section 4.3.6 on Industry and Energy Policy, where environmental safety is clearly designated as an objective of the overall policy.

38. Also important are strategic documents with an explicit environmental focus, such as the State Environmental Program (SEP), which is a combined cross-agency expression of environmental priorities and planned responses to them. The current SEP extends until 2014 (as Additional Action Plan on the Improvement of the Ecological Situation in the Republic of Azerbaijan for 2010–2014). While environmental action is finally beginning to move to second-tier cities (and ADB is party to that trend), the SEP is focused on the environmental rehabilitation of the Absheron Peninsula, reflecting the disproportional accumulation of environmental problems there.

2. Institutional Developments

39. The overall direction of institutional development in the last decade is linked to the process of corporatization of several government functions, as well as the surge in public revenue. The explosion of public expenditure made possible by the oil bonanza did more than just increase the amount of resources devoted to environment-related objectives, among others. It also changed the balance of institutional involvement in the country's environmental action. As explained in Section 5 the revived fortunes of the oil and energy industries have also turned several state corporations into important environmental players whose influence and budgets have come to overshadow those of the Ministry of Ecology and Natural Resources (MENR).

40. MENR, with its mainly non-investment mandate, received much less and very little from the Public Investment Program (PIP). Apart from its central role (see Box 1), MENR's mandate continues to be somewhat fuzzy in this changed revenue and institutional landscape. MENR periodically receives budget allocations for special initiatives that may then overlap with the mandates of some state corporations (e.g., for decentralized water supply units in the countryside). In other cases (e.g., solid waste management and renewable energy), MENR's initial on-the-ground involvement has largely ceased, and the Ministry's role is appropriately that of monitoring achievements and compliance.

Box 1: Azerbaijan's Ministry of Ecology and Natural Resources

MENR is responsible for environmental policy formulation and for safeguarding the country's environment (screening, monitoring, etc.), as well as for certain project-implementation responsibilities. The Ministry consists of the central apparatus and specialized departments and currently has a staff of about 9,000, including its 13 regional departments. Since 2003, the Forest Development Department and the Department for Protection of Biological Diversity and Protected Areas have functioned as subordinate organizations with an increased degree of autonomy.

MENR's Department of Environmental Protection monitors the compliance with environmental protection legislation. The physical structure of monitoring is in place. MENR's departments of Environmental Monitoring, Hydrometeorology ("Hydromet"), the Caspian Complex Monitoring Administration, and the Geological Exploration Service operate monitoring networks on air, water and soil quality, background radioactivity and biodiversity.

MENR also serves as the Designated National Authority (DNA) for participation in the Clean Development Mechanism (CDM). The DNA has five technical groups and has established national criteria for CDM projects.²¹ Its Climate Change and Ozone Center employs 20 people. The Ministry's Hydrometeorology Department deals with climate change-related international obligations, including greenhouse gases (GHG) inventory and preparation of national communications to the United Nations Framework Convention on Climate Change (UNFCCC).

As to the institutional performance of MENR, a recent United Nations Economic Commission for Europe (UNECE) assessment (UNECE 2011) contains a number of pertinent and constructive observations. Besides those relating to the framework for, and conduct of, environmental assessment (described in Section 3, the principal weaknesses are: (i) understaffing that affects not only the conduct of environmental screening and assessment but other mandated activities (e.g., MENR's local forestry activities); and (ii) over-centralization linked to a recent reduction of regional environmental departments from 20-25 to the current 13.²²

41. Projects supported by international financial institutions (IFIs) have been a mixed blessing for MENR. On the one hand, they give MENR an opportunity to reassert its authority (via its responsibility for environmental assessment where MENR's rides on the exacting procedures of IFIs), but when IFI funds are channeled to state corporations, the former advantage is offset by an overall dilution (via budget allocations) of MENR's influence.

42. In addition to MENR, there are a number of national-level government agencies that address complex environment-related agendas (see Table 7). While horizontal cooperation between these agencies is still insufficient, three principal mechanisms have been used to promote inter-agency cooperation on environmental matters. First, recent umbrella documents, especially the SEP, have deliberately adopted a structure that demands cooperation of designated government agencies around specified activities. Under SEP, agencies that are expected to collaborate in achieving its formal goals are identified and expected to provide inputs (under MENR's leadership).

²¹ The country has no registered CDM projects yet, but the validation pipeline comprises five projects (two supply side energy efficiency, one fossil fuel switch, one hydropower and one oil flare reduction). Further twelve projects are at earlier stages. The fate of all of these projects is uncertain with the expiry of CDM in 2012 and lack of clarity concerning successor mechanisms.

²² It is possible to interpret this, however, as a responsible precautionary action in the face of looming financial crisis in 2008-2009.

Table 7: State Ministries, Agencies or Corporations with Environmental Responsibilities²³

Environmental Concern	Agencies with Primary Responsibility
Air quality	MENR, Ministry of Health, and Ministry of Transport
Biodiversity, forestry, fisheries	MENR
Land and soils	MENR, State Committee on Land and Cartography, and Ministry of Agriculture
Water	MENR (several departments), Azersu Joint Stock Company, Ministry of Health, SAWM, Ministry of Health, Ministry of Agriculture, the Tariff Council
Oil pollution	State Oil Company of Azerbaijan (SOCAR), MENR
Hazardous waste	Ministry of Emergency Situations; MENR; Ministry of Health, Ministry of Agriculture (State Phytosanitary Control Service)
Waste	Ministry of Economy and Industry (MEI), Temiz Shahar joint stock company (JSC) (under MEI), MENR, executive powers, and municipalities
Mineral resources	MENR (Geological Service)
Sustainable development	MEI is the lead institution coordinating sustainable development activities. Program components on environment are developed by MENR.
Climate change / energy efficiency	MENR, Ministry of Energy and Industry (MEI), State Agency for Alternative and Renewable Energy (of MEI), Azerenerji JSC

Source: Adapted from UNECE. 2011, p. 19.

43. Second, state commissions have been created in some cases. The State Commission on Climate Change was established in 1997 under First Deputy Prime Minister with representation by MENR, MEI, the Ministry of Emergency Situations, Ministry of Industry and Energy, Azerenergy, and SAWM.²⁴

44. Third, ad hoc and temporary inter-agency groups have been formed to deal with specific cross-cutting environmental issues. An example is the Inter-agency Working Group on Environment created in 2010 to assist the formulation of CEA by the World Bank.

45. The institutional environment has evolved over the last decade. On the plus side has been the consolidation and enhancement of MENR's financial position, a larger number of economic entities increasingly aware of their environmental obligations and acting on them, conscious efforts to improve inter-agency collaboration, and the creation of agencies with an innovative mandate, such as State Agency for Alternative and Renewable Energy Sources (SAARES).

3. Environmental Legislation

46. Extensive legislation exists in Azerbaijan that addresses most aspects of environmental management. Table 8 presents the most important legal and regulatory provisions by environmental theme. However, there has been uneven progress on the legislative and

²³ In addition, there are other agencies that play some, usually indirect but not negligible, role in environmental management broadly conceived. These include: Ministry of Agriculture, Ministry of Transport, Ministry of Home Affairs, Ministry of Education, Ministry of Justice, State Land and Cartography Committee, State Property Committee, State Urban Planning and Architecture Committee, State Statistical Committee, Caspian Shipping Company, Office of Prosecutor-General, State Agency for Standards, Meteorology and Patents, Azerbaijan National Academy of Sciences and Azerbaijan Investment Company.

²⁴ However, UNECE 2011 finds that the Commission's performance and influence have fallen short of expectations.

regulatory front, with advances in some areas and stagnation in others. For instance, significant progress has been made in waste management. Several by-laws have been adopted recently, including 2008 regulations on inventory of industrial and hazardous waste, cross-border transportation of hazardous waste, management of medical waste, identification of fees for storage, and collection and disposal of waste. Some advances are also noticeable in the energy sector, and a law on renewable energy is under preparation.

Table 8: Environmental Legislation in Azerbaijan

<i>Theme</i>	<i>Policy Framework</i>
<i>Management of forest resources</i>	Forest Law (1997); State Program for the Restoration and Expansion of Forests (sometimes State Program on Reforestation and Afforestation) for the period 2004-2008 was approved in 2003.
<i>Management of land resources</i>	Land Law (1999) Law on Land Fertility (1999); Land Lease Law (1999); Land Market Law (1999); State Program on Summer/Winter Pastures, Effective Use of Meadows and Desertification Prevention in the Republic of Azerbaijan for 2004-2010; State Program on Food Security 2008-2015.
<i>Management and protection of biodiversity and natural assets</i>	Law on the Protection of Plants (1996); Law on Wildlife (1999); Law on Nature and Protected Areas (sometimes as Law on Specially Protected Natural Areas and Objects) (2000); Law on Hunting (2004); Convention on Biological Diversity ratified in 2000, National Strategy and Action Plan on Biodiversity Conservation and Sustainable Use for the Period 2006-2009. CITES ratified in 1999, Ramsar Convention in 2001.
<i>Water management</i>	Law on Melioration and Irrigation (1996 amended in 2004); Water Law (1998), Law on Hydrometeorology (1998), Law on Water Supply and Wastewater (1999), Law on Water Economy of Municipalities (2001), Law on Safety of Hydrotechnical Installations (2002). Pres. Decree No. 2244, 2007 on "Some Measures on the Protection of the Caspian Sea from Pollution"; State Program on the Development of Hydrometeorology for the period 2004-2010; UNECE Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes ("Helsinki Convention"), ratified in 2000.
<i>Air quality</i>	Law on protection of atmospheric air (2001), ratified the UN Convention on Long Range Transboundary Air Pollution Convention in 2002.
<i>Climate change mitigation and adaptation</i>	Azerbaijan ratified the United Nations Framework Convention on Climate Change on 16 May 1995; established the State Commission on Climate Change in 1997; and ratified the Kyoto Protocol on 28 September 2000. In support of this, AZE has submitted its First and Second National Communications to the UNFCCC (2001, and 2009), ²⁵ and prepared the Technology Needs Assessment (TNA) of 2013 for adaptation. ²⁶ It formulated the State Program on the Rehabilitation and Expansion of Forests (2008), which also covers measures to mitigate climate change, and the State Program on Hydrometeorology, which includes actions for improved climate monitoring.
<i>Risk reduction and emergency management</i>	Law on Radiation Safety (1997); Law on Civil Defense (1998). Law on Environmental Protection 1999.
<i>Waste management (hazardous and solid)</i>	Law on the Radiation Safety of the Population (1997); Law on Pesticides and Agrochemicals (1997); Law on Environmental Protection 1999; Law on Industrial and Municipal Wastes (1998, with major amendments in 2007); Law on Establishment of Hazardous Waste Management and licensing of Hazardous Waste (2002); Law on Municipalities (2004); Law on Water Supply and Wastewater (2000). The Basel convention on transboundary movement of hazardous wastes was ratified in 2001, Cartagena (Biosafety Protocol) in 2005, and the Stockholm Convention on

²⁵ Republic of Azerbaijan. 2010. Second National Communications to the United Nations Framework Convention on Climate Change. Baku

²⁶ Republic of Azerbaijan. 2013. Technology Needs Assessment for Climate Mitigation and Adaptation, Summary Report. http://unfccc.int/tclear/sunsetcms/storage/contents/stored-file-20130327152139377/TechnologyNeedsAssessment-Summary_Azerbaijan.pdf

	Persistent Organic Pollutants in 2004. State Strategy on Hazardous Waste Management (2004-2010).
<i>Energy development, renewable energy</i>	Law on the Utilization of Energy Resources (1996), Law on Electric Energy (1998); Law on Energy (1998); Law on Electric Power and Heat Stations (1999). Activities of Azerbaijan's Tariff Council are extensively regulated. State Program on Renewable and Alternative Sources of Energy for the period 2008-2015; Action Plan 2010-2020 for Alternative Energy Sources; State Program for the Development of Fuel Energy Complex for 2005–2015.
<i>Environmental assessment, environmental monitoring, environmental financing</i>	Law on Environmental Protection (1999, and its Clause VIII dealing with SEE), EIA Handbook (1996, without a legal authority, however); Law on Hydrometeorology (1998); Aarhus Convention (2000); Law on Access to Environmental Information (2002, with significant changes in 2010). Espoo Convention on EIA in a transboundary context (1999); Cabinet of Ministers Resolution on the Rules of State Monitoring of Environment and Natural Resources (2004) regulating different types of monitoring for environmental media (air, soil and water).Hydrometeorology Development Program for the period 2004–2010.
<i>Selected other</i>	Law on the Privatization of State Property (2000). Article 6: underground resources, forests, water resources, protected nature areas and the Azerbaijani sector of the Caspian Sea are not subject to privatization. Administrative Code (2002, with significant changes in 2008); Law on Natural Treatment Areas (Spas) and Resorts (2008); Law on Tourism (under consideration); State Tourism Development Program 2010-2014; Law on Underground Resources (1998).
<i>Financial mechanisms to protect the environment</i>	1992 Presidential Decree No. 176 on the Introduction of Payments for Natural Resources, Payments for Emissions of Pollutants into the Environment and the Use of Funds from these Charges; 1999 Law on Environmental Protection.

47. Elsewhere, the evolution has been much slower or absent. Progress has also been hampered by poor quality of implementing secondary legislation, rules and regulations, which complicates compliance and enforcement. For instance, weak legislation can be seen in pasture management. Pastures belong to local authorities but are rented by farmers who are expected to use them in sustainable ways. Existing subsidiary control rules and mechanisms are missing or are inappropriate, adding to the basic flaw (e.g., lack of sustainability incentives) of the overarching legislation. As a result, pastures continue to deteriorate. To offer another example, little has been done so far in the area of voluntary environmental compliance and adoption of ISO 14000 environmental assessment systems.

4. Sectoral strategies and programs

48. The development of sectoral strategies and programs is underway. As of early 2014, the State Program on the Improvement of Environment and Effective Use of Natural Resources in Azerbaijan 2014–2020 is being reviewed. Programs on climate change are included in this overarching program. Also, a national action plan is being developed for mitigation of climate change and Nationally Appropriate Mitigation Actions (NAMAs). Other initiatives include the adjustment of local legislation to European Union directives.

49. While Azerbaijan does not have a dedicated climate change strategy yet, it has undertaken measures to support climate change mitigation. Azerbaijan ratified the UN Framework Convention on Climate Change on 16 May 1995 and the Kyoto Protocol on 28 September 2000. Azerbaijan has prepared a number of laws, state programs and regulatory acts concerning the Convention and adopted related international documents that support climate mitigation (see Table 9). In support of the UNFCCC reporting requirements, Azerbaijan

submitted its First and Second National Communications to the UNFCCC on 2001, and 2009.²⁷ The 2009 report describes specific GHG abatement projects and measures for the energy sector, which are laid out in the State Program on the Development of Fuel Energy Complex. The following GHG abatement projects are considered in support of electricity production and consumption: (i) installation of automatic control and metering systems for oil and gas production; (ii) fuel switching (liquid fuel to gas), and (iii) hydroelectric systems. The GHG emissions mitigation plans for other sectors are (i) for the oil and gas sector, the recovery and use of gases previously released into the atmosphere, with potential annual emission reduction of 1.2 million tCO₂e; (ii) for the industrial sector, improvement of cement production through optimization of clinker production and burning processes; (iii) for the agricultural sector, production of biogas via conversion of animal waste and processing dry wastes from agricultural plants; (iv) for the municipal and industrial wastes sector, improvement of the solid waste management processes (e.g., incineration); and (v) for the forestry sector, reforestation of 69,000 hectares of forest under the National Program on the Rehabilitation and Expansion of Forests, with an estimated sequestration potential of 2.9 million tCO₂e per year.

Table 9: Laws and Regulatory Acts in Support of Climate Change

Title of Document	Date of Adoption
Measures to ensure the fulfillment of commitments under UNFCCC ratified by the Republic of Azerbaijan on 10 January 1995	30.04.1997
Law on Production and Municipal Wastes	30.07.1998
Law on Gas Supply	30.06.1998
Law on Energy	24.11.1998
Law on the Generation of Energy	01.02.1999
Law on Heating and Energy Stations	28.12.1999
Law on Environment Protection	08.07.1999
Law on Air Protection	21.03.2001
Law on Environmental Public Education and Awareness Raising	0.12.2002
National Programme on Environmentally Sustainable Social Economic Development	18.02.2003
National Programme on Forest Rehabilitation and Forestation	2003
Law on Export Control	26.10.2004
State Programme on Use of Alternative and Renewable Sources of Energy in Azerbaijan Republic	21.10.2004
State Programme on Social Economic Development of Remote Areas	n.a.
State Programme on Development of Fuel and Energy Complex in Azerbaijan in 2005-2015	14.02.2005
Resolution of the President on the Approval of Complex Action Plan for 2006-2010 on the Improvement of a State of Environment in Azerbaijan	21.09.2005
Resolution of the President on Enhanced Measures Concerning Issues Arising from International Environmental Conventions and Agreements signed by the Republic of Azerbaijan	30.03.2006

Source: Republic of Azerbaijan. 2010. Second National Communications to the United Nations Framework Convention on Climate Change. Baku

50. Azerbaijan identified the use of alternative energy and the development of low carbon measures in the commercial and residential sectors as the priority for GHG mitigation, with potential for 32.7 million tCO₂ emission reductions by 2030. The following technological

²⁷ Republic of Azerbaijan. 2013. Technology Needs Assessment for Climate Mitigation and Adaptation, Summary Report. http://unfccc.int/ttclear/sunsetcms/storage/contents/stored-file-20130327152139377/TechnologyNeedsAssessment-Summary_Azerbaijan.pdf

requirements are identified: (i) small-scale solar hot water and electricity; (ii) large scale grid connected wind power; (iii) small scale run of river and canals hydro; (iv) small scale bio-energy from biomass and biogas for heating and cooking; and (v) small scale geo-thermal energy from natural hot springs. For the commercial and residential sector, the following technologies are considered for small to large scale applications on (i) energy efficient lights; (ii) heat pumps, efficient heating and hot water supply; (iii) efficient stoves; (iv) energy (electricity and gas) management systems for homes and buildings; and (v) efficient ventilation and cooling systems. The key factor for the selection of the priority GHG mitigation measures are (i) cost effectiveness in terms of capital investment as well as operations and maintenance; and (ii) co-benefits (e.g., sustainable energy supply, increased income and savings).

51. Azerbaijan's ratification of the majority of global environmental conventions has added to the number of domestic environmental stock-takings and prioritizations, and several action plans have been formulated to fulfill Azerbaijan's obligations. Documents with strategic intent have taken the form of national communications to the relevant international conventions, especially under UNFCCC and United Nations Convention to Combat Desertification (UNCCD), or self-assessments, such as the Capacity Needs Self-Assessment for Global Environmental Management (2005).

52. Elsewhere, international cooperation in the environmental domain has led to further firming up or adjustment of environmental priorities. Broad support for adopting international environmental policies, standards, norms and technology [the European Union (EU) or Organization for Economic Cooperation and Development (OECD) usually serving as a point of reference] and transboundary water and coastal issues have emerged as major themes. Examples include the Caspian Environmental Program (from 1995), the EU–Azerbaijan Partnership and Cooperation Agreement (1999) and subsequent EU-Azerbaijan Action Plans, and participation in the Environment for Europe (EfE) process. A plethora of bilateral environmental cooperation agreements also exist that normally serve functions other than environmental prioritization.²⁸

53. Additionally, there are more specific, sub-sector action plans that may not have official sanction but inform policy or provide technical background for major investment initiatives. Examples include the Master Plan on Integrated Environmental Management in Greater Baku (Japan International Cooperation Agency, 2000), Greater Baku Water and Wastewater Master Plan (World Bank, 1998), Water Sector Strategy (World Bank, 2006) or ADB-supported Transport Sector Development Strategy (2006).

54. Worth mentioning separately is renewable energy. In spite of the current abundance of non-renewable energy sources, Azerbaijan has begun to promote renewable energy to extend the life of its oil and gas reserves and lower the power distribution costs (in some cases), as well as to respond to climate change concerns. The government formulated a goal of generating 10% of total domestic energy consumption from renewable sources by 2020. Small and mini-hydro facilities in particular are considered to hold significant potential.²⁹ In 2011, the SAARES inaugurated its Gobustan Test and Training Center featuring a hybrid solar and wind power plant. A solar panel production facility was opened in Sumgait in 2011.

²⁸ MENR official website (www.eco.gov.az) lists the various bilateral initiatives.

²⁹ Estimates of new feasible mini hydros vary from 60 to 250 and the additional capacity that could be created starts at 350 MW (see ADB 2007 for the most credible estimates). Some existing hydropower facilities (e.g., Mingichevir) are being rehabilitated or are slated for such rehabilitation.

55. Azerbaijan's Transport Policy seeks to promote more fuel efficient vehicles and start their domestic production. Increase of fuel efficiency will be achieved through the use of bio-additives, alternative fuels and cleaner fuels with low sulfur content. Introduction of the national fuel economy/GHG emission standards for light duty vehicles (LDVs) is expected soon. Financial disincentives were introduced in 2009 to limit imports of LDVs not meeting environmental, esthetical and exploitation requirements. The structure of incentives/disincentives is to undergo further refinement (e.g., restrictions on importing vehicles older than 5 years from EU and older than 3 years from CIS countries).

5. Spending and Financing for Environment-related Activities

56. When all sources are considered,³⁰ environment-related expenditures in recent years have been between 2% and 3% of GDP and between 6% and 12% (depending on the year) of the PIP. These numbers in part reflect the surge in oil revenues, with much of the funds going to clean-up and municipal infrastructure.

57. A significant portion of environmental-related investments in Azerbaijan are undertaken by state corporations. Inclusion of these corporations in the SEP is proof that the government considers them to be involved in environmental activities. Investment expenditures of the financially weak corporations, such as Azersu and the SAWM,³¹ come from the state budget (the PIP segment)—and from the proceeds of foreign loans—but official data on environmental expenditures do not include them. In the case of the financially strong SOCAR and increasingly strong Azerenerji, their environmental expenditure is entirely (in the case of SOCAR) or largely (in the case of Azerenerji) internally-funded.³² SOCAR's environmental expenditure in the second half of the last decade was about AZN50-60 million per annum.

58. Environmental projects supported by SOFAZ should also be considered. The allocation alone from SOFAZ to two projects with a meaningful, if indirect, environmental objectives—the Samur-Absheron irrigation rehabilitation and the Gabala-Baku water pipeline—amounted to AZN200-300 million per annum in recent years.

59. In comparison, the MENR budget stood at AZN32.3 million in 2009. This budget is utilized in accordance with the cost estimate approved by both the Ministry of Ecology and Natural Resources and the Ministry of Finance. It is financed under the state budget but also by special and off-budget funds. Collected revenues are part of the single treasury account and released only at the approval of the Ministry of Finance on the basis of overall spending plans. As the Ministry of Finance also needs to endorse future revenues projections, it exerts a significant degree of influence over these funds.

³⁰ These sources include the following: (1) expenditures by state ministries (MENR but also Ministry of Emergency Situations, Ministry of Health, etc.); (2) total expenditure of "environmental" state corporations (Azersu, SAWM) consisting of (a) domestically-funded investment expenditure included in PIP; (b) foreign-funded investment expenditure (IFI loans, credits); and (c) all current expenditure; and (3) environmental expenditure of other relevant state corporations (SOCAR, Azerenerji, CSC), including its PIP-financed or non-PIP (own or foreign)-financed investment component and corresponding part of current expenditure.

³¹ Azersu and SAWM (unlike SOCAR or Azerenerji) have not had the capacity to mobilize their own investment funds and are totally dependent on the state budget (and IFIs).

³² Because official estimates of total environmental expenditure omit the environmental expenditure by several state corporations that either have a predominantly environment-related mandate (Azersu and SAWM) or have recently expanded their environmental activities (SOCAR, Azerenerji, and CSC), these estimates are seriously underestimated.

60. The two largest funds are the State Fund for the Protection of the Environment and the State Fund for the Preservation and Rehabilitation of Forests (“Forest Fund”). Fines imposed for violating the Forestry Code and donations accrue to the latter fund. However, the Forest Fund has been mostly used to cover the salaries of employees in regional offices with little left for reforestation activities. Pollution charges and fines are the main sources of revenue for the former fund.

61. The so-called Special Fund for the Management and Protection of Particularly Protected Natural Sites (State Fund on Protected Areas) was set up in 2005. In this case, while protected areas still need to submit their spending plans for central approval, they enjoy a greater degree of financial autonomy. An important additional source of MENR revenue in recent years has been the Presidential Reserve Fund, but the availability of funds from this source has been unpredictable.

62. The aggregated revenue-raising capacity of pollution charges and other environmental economic instruments remains too small to create a critical mass of resources to support significant environmental improvements. The revenue from these instruments represents only 0.02% of the revenue from all types of charges and taxes in the country. Azerbaijan needs to revise its use of economic instruments for environmental protection and natural resources management.

63. A more fundamental weakness of environmental financing in Azerbaijan is the absence of mechanisms that would evaluate and monitor the efficiency of environmental spending. Although financing decisions are based in principle on the consistency of the proposed actions with measures envisaged in various state programs, there is no agreed basis for defining spending priorities and rules for selection and arbitration. Budgetary requests by MENR are not linked to the implementation of existing programs, but rather to the day-to-day functioning of the Ministry.

64. SEP also currently lacks a firm financial basis that would make it possible to monitor it meaningfully. In spite of scattered appearance of project budgets,³³ SEP has been mainly a means of assembling project concepts and packaging environmental priorities into themes, assigning agencies to be mainly responsible for addressing those priorities, and adopting a flexible approach to the timing of SEP investments, rather than also a tool of monitoring performance and estimating the value for “environmental money”. As useful as the SEP has been, a more pragmatic medium-term plan of action is needed to provide a coherent and long-term environmental policy.

C. ADB and other Donor Programs and Projects on Environment and Climate Change

65. Azerbaijan has been well integrated into the structure of international development assistance and collaboration, including its environmental components. The true reformers within the government look to IFIs and other donor agencies also to drive the fight against graft and misuse of public funds.

66. Since 2005, when ADB’s involvement in Azerbaijan was still limited, ADB’s assistance has moved in a resolutely infrastructure-oriented direction. This has been a major, even if

³³ Neither the original decree calling for the formulation of SEP nor any other official document contains the Program’s overall budget. Preliminary budget estimates of only a small number of individual components are found in MENR or MEI at the Program outset.

indirect, environmental plus because of the overwhelmingly virtuous linkages between improvement of physical infrastructure and environmental and health outcomes. For instance, many of the projects undertaken by Azerbaijan's development partners (ADB included) target upgrading the water-related infrastructure.

67. ADB's 2008 Power Transmission Enhancement Project and its possible successor are expected to focus on: (i) promoting pilot small hydropower development in the remote and underdeveloped rural regions to supplement energy balance; (ii) strengthening transmission and distribution network to improve power supply reliability, reduce transmission and distribution losses, and enhance energy efficiency; and (iii) policy support, institutional restructuring and capacity building. ADB's 2005 Renewable Energy Development Project (TA 4726) provided a basis on parts of which ADB can build.

68. ADB has gained experience in designing and implementing projects in different ecological zones, with environmental assessments of some of these projects generating detailed understanding of local physical environments and potential threats to them. While the majority of ADB investments so far have been directed at urban areas of the Kura-Araz flood plain, the Flood Mitigation Project (2003) introduced ADB to the specifics of the mountain environment and flash floods typical of the Greater Caucasus. Tranche 3 of the Road Development Network Multitranchise Financing Facility is being implemented in the vicinity of Lenkoran within the ecological specifics of that area.

69. Azerbaijan is a beneficiary of two technical assistance projects. The technical assistance for Economics of Climate Change in Central West Asia³⁴ supports Azerbaijan in assessing the cost of climate change mitigation, formulating nationally appropriate mitigation actions, and developing investment concept notes for the transport and energy sectors. The technical assistance for Enabling Climate Change Interventions in Central and West Asia³⁵ provided wind and solar atlas for Azerbaijan, and supported the participation of Azeri experts in climate and carbon finance workshops.³⁶

70. Apart from ADB, a very large number of organizations collaborate with Azerbaijan (mainly with government structures but also with the civil society). In the area of environmental management, the principal partners are EU (especially in energy efficiency), World Bank (in public environmental infrastructure, waste management, and irrigation rehabilitation), the German government through *Gesellschaft für Internationale Zusammenarbeit* (GIZ) and *Kreditanstalt für Wiederaufbau* (KfW) (in the power sector, biodiversity conservation, water supply and sanitation, and solid waste management), and Japan (water supply and sanitation). In terms of policy dialogue, the most important are OECD, UNECE, and OSCE. There are also international NGOs active in livelihood improvement (with its positive environmental spillovers), biodiversity conservation, and public awareness. A number of donor-funded climate change related projects were implemented during the last decade that have increased awareness and transferred know-how. These were supported by Canadian International Development Agency (CIDA), Danish International Development Agency (DANIDA), Germany, and Norway (the last-

³⁴ ADB. 2012. Regional- Research and Development Technical Assistance: Economics of Climate Change in Central and West Asia. Manila.

³⁵ ADB. 2009. Regional Capacity Development Technical Assistance: Enabling Climate Change Interventions in Central and West Asia. Manila

³⁶ These workshops include the following: ASIA Low Emissions Development Strategy Forum, USAID, Bangkok, September, 2012), ADB-Asia LEDS Partnership, Manila, April, 2013, and the Regional Workshop for Eastern European and Asia Pacific Regions to Share Experiences and Lessons Learned in the Preparation and Implementation of Nationally Appropriate Mitigation Actions (Armenia, 2012).

mentioned through a United Nations Development Programme (UNDP)/Norway-funded Capacity Building for Clean Development Mechanism in Azerbaijan Project, 2006–2008). In 2009, Azerbaijan signed a memorandum of understanding with UNDP on access to UNDP's MDG Carbon Facility and stated its intention to prepare a low emission and climate resilient development strategy (LECRDS). Climate change-related action has also been supported by four projects funded by the Global Environment Facility (GEF), all implemented by UNDP. The initial two were largely administrative, developing the capacity of the country to report to GEF. The subsequent two are: (i) integrating climate change risks into water and flood management by vulnerable mountainous communities in the Greater Caucasus region of Azerbaijan; and (ii) (a multi-focal) Sustainable Land and Forest Management in the Greater Caucasus Landscape, in which climate change features importantly.

71. Azerbaijan has registered 5 Clean Development Mechanism projects (i.e., 1 wind, 2 supply side energy efficiency, and 2 landfill gas to energy); 2 projects are under validation (i.e., wind and fugitive emissions capture). Total certified emission reduction (CER) credits of the registered projects are estimated at 13.65 million tCO₂e; additional 4.4 million tCO₂e are estimated to result from the projects submitted for registration by the UN Executive Board.

72. It is important for ADB to recognize the multiplicity of sources and the scale of donor support, for it offers interesting and insufficiently explored room for environmental cofinancing. Activities of environmental NGOs, such as the Regional Environmental Center Caucasus (RECC), are also an important reminder that development partners can and should mean both those that provide investment funds to governments or directly to local communities, as well as those who help implement resulting investment activities at the local level, partnering with government structures and local beneficiaries.

D. ADB's Strategies and Business Plans and Environment-related Recommendations

73. Under the CPS for 2014–2018, ADB will strengthen the integration of environmental and climate considerations as well as safeguards into the government's public investment programs, ensure that projects conform to the ecological conditions of the specific areas, and enhance Azerbaijan's capacities and awareness raising efforts through environment and climate change regional technical assistance.

74. **Environmental infrastructure.** Opportunities exist to shape the support to the energy sector in a distinctly pro-environment direction by including renewable energy and additional energy efficiency components in future assistance. ADB is expected to resume its previous role in renewable energy development, further strengthen the working relationship with the State Agency for Alternative and Renewable Energy, coordinate its activities with other partners, and establish clearer links between its assistance in the energy sector to climate change objectives. Significant potential also exists for improving energy efficiency in new buildings.

75. In transport, ADB assistance could strengthen capacity in the Ministry of Transport to manage the environmental assessment process and apply the best of "greening" or low carbon ideas for the development of the sector. One idea already under consideration is to modify the modal composition of the transport sector and rehabilitate the most viable segments of the rail network.

76. A good case could also be made for adding solid waste management to ADB's support for water supply and sanitation in secondary towns, given the interdependence of solid waste management and water quality. Valuable experience has been generated under the Absheron

Rehabilitation Program, and viable models of local solid waste management have now emerged in Lenkaran and Ganja. Scaling up of these approaches might be possible.

77. **Environmental safeguards and governance.** A clear national environmental policy for the next decade does not exist in Azerbaijan. ADB could support the authorities in extending SEP and several environmentally-relevant sectoral policies that are now expiring.

78. Environmental safeguards in Azerbaijan require attention, because periods of rapid economic growth demand robust environmental defenses. ADB will prepare a country safeguard framework (CSF) that will assess national laws and policies pertaining to social and environmental safeguards and national capacity for their implementation. The CSF will identify gaps in these areas and assist the government in addressing them.

79. There are also opportunities to improve environmental governance, both within MENR and also with state corporations, which play a significant role in environment-related activities. As part of investment projects, other areas of possible assistance could include improving environment-related information and its consolidation and reconciliation, promoting regular state-of-the-environment reporting, and reviewing the design and use of economic instruments in support of a healthy and sustainable environment.

80. **Additional possibilities.** Other areas for support could entail the long-term viability of Azerbaijan's renewable resource endowment, land degradation, pollution of small rivers, and threats to biodiversity and climate change. Some of these issues could be addressed in the new CPS by establishing a constructive working relationship with MENR.

References

Note: only the principal references are given here. A fuller list of references and websites dealing with different aspects of Azerbaijan's environment are provided below this list.

ADB. 2005. *Azerbaijan Country Environmental Analysis*, Manila.

Aslanli, K. 2010. "Oil and Gas Revenues Management in Azerbaijan: Crude Dependence and Its Consequences". *Caucasus Analytical Digest*, No. 16, 2010, pp.8-11

Esanov, A. 2009. "Efficiency of Public Spending in Resource-Rich Post-Soviet States," Revenue Watch Institute. Available at www.revenuwatch.org

Kjærnet, H. 2010. "The State Oil Company SOCAR: A Microcosm of Azerbaijani Development?" *Caucasus Analytical Digest*, No. 16, 2010, pp. 5-7.

OECD. 2011. *Ten Years of Water Sector Reform in Eastern Europe, Caucasus and Central Asia*. Paris.

Omarov, E. et al. 2009. *Monitoring of the Disclosures of and Access to Public Information in the Republic of Azerbaijan*, Revenue Watch Institute, New York.

SOCAR. 2008. *Environmental Policy*. Baku. Available at www.socar.az

UNECE. 2011. *Azerbaijan: 2nd Environmental Performance Review*, United Nations Economic Commission for Europe, Geneva.

World Bank. 2008. *Azerbaijan: Corporate and Public Sector Accountability Project*. Project Appraisal Document, Washington D.C.

_____. 2009. *A New Silk Road: Export-led Diversification*. Azerbaijan Country Economic Memorandum. Report No. 44365-AZ. Poverty Reduction and Economic Management Unit, Europe and Central Asia Region. Washington D.C.

_____. 2010. *Azerbaijan: Country Environmental Analysis: Priorities, public environmental expenditures and institutional readiness*, Internal document, Washington D.C.

Further information by theme

Types of ecosystems

- (1) Agayeva, N. et al. 2009. *Potential Analysis for Further Nature Conservation in Azerbaijan: A Spatial and Political Investment Strategy*, Geozon Science Media, Greifswald.
- (2) MENR. 2006. *Biodiversity Strategy and Action Plan*, Baku.
- (3) <http://www.caspianenvironment.org/Newsite/Data-MajorDocuments.htm> for details of the Caspian ecosystem.
- (4) UNECE. 2011. *2nd Environmental Performance Review; Azerbaijan*. Chapter 9: Biodiversity, forestry and protected areas, pp.135 ff.

Forest Ecosystems

- (1) Food and Agricultural Organization of the United Nations (FAO). 2010. *Global Forest Resources Assessment 2010: Azerbaijan*. Forestry Department, Report FRA 2010/014. FAO. Rome.
- (2) MENR (www.eco-az.org).

Pasture ecosystems

- (1) Kosayev, E. and Y. Guliev. 2001, modif. 2006. *Country Pasture/Forage Profile*, a report for FAO available at <http://www.fao.org/ag/AGP/AGPC/doc/Counprof/Azerbaijan/Azerbaijan.htm>
- (2) UNDP. 2012. *Azerbaijan: Sustainable Land and Forest Management in the Greater Caucasus Landscape*, a proposal submitted to GEF, Baku.

Water ecosystems

- (1) FAO (www.fao.org/nr/water/aquastat/countries_regions/azerbaijan/index.stm)
- (2) FAO Aquastat (http://www.fao.org/nr/water/aquastat/countries_regions/azerbaijan/index.stm)
- (3) Mammadov. M. 2002. "Baku's Search for Water: A Brief Chronology", *Azerbaijan International*, Summer 2002, pp. 50-51.
- (4) Tollner. E. (ed.). 2007 "Water profile of Azerbaijan," *The Encyclopedia of Earth*; Available at http://www.eoearth.org/article/Water_profile_of_Azerbaijan
- (5) UNECE. 2011. Chapter 7. Water Management and Protection of the Caspian Sea, pp.99 ff.
- (6) Verdiyev, R. 2008. *Water Resources Development and Management in Azerbaijan*, a presentation to First Regional Workshop for Eco-Efficient Water Infrastructure Development , Seoul, 10-12 November 2008 (see <http://www.unescap.org/esd/Energy-Security-and-Water-Resources/water/projects/eewi/workshop>)

Fisheries

- (1) Markandya A. 2006. *An Economic Analysis of the Problem of Sturgeon Depletion in the Caspian Sea*. University of Bath.
- (2) Speer, L. et al. 2000 *Roe to Ruin: The Decline of Sturgeon in the Caspian Sea and the Road to Recovery*, Natural Resources Defense Council, Wildlife Conservation Society and Sea Web.
- (3) Taylor, S. 1997. "The historical development of the caviar trade and the caviar industry". In: Birstein, V.J., A. Bauer & A. Kaiser-Pohlmann (eds.) 1997 *Sturgeon Stocks and Caviar Trade Workshop*, Proceedings of a Workshop Held 9-10 October in Bonn, Germany. IUCN Occasional Paper No. 17: 45-54.

Arable lands

- (1) Aghayeva, A. 2000. "[Seeds of Change](#): Transition in Azerbaijan's Agriculture", *Azerbaijan International*, Autumn 2000 (8.3), pp 28-31.
- (2) World Bank.2011, *Water Users Association Development Support Project*, Project Appraisal Document, Washington D.C.
- (3) UNECE. 2011, p.106 for more on the backlog of work on irrigation rehabilitation.

Hydro carbon resources

- (1) Mir-Babayev, M.Y. 2002. "Azerbaijan's Oil History: A Chronology Leading up to the Soviet Era". *Azerbaijan International*, Summer 2002 (10.2), pp. 34-40.
- (2) Ciaretta, A. and S. Nasirov. 2011. *Analysis of Azerbaijan Oil and Gas Sector*, Presentation to 30th Conference of the United States Agency for Energy Economics, Washington D.C. 9-12 October 2011. see http://www.usaee.org/usaee2011/submissions/OnlineProceedings/Ciarreta_Nasirov-Article1.pdf

Energy and industry

- (1) Mustafaev, I. Guseinov, S. and N. Guileva. 2006. *A Survey of the POPs-related Situation in Azerbaijan*, a consultant report for the International POPs Elimination Project, Baku
- (2) Renewable Energy and Energy Efficiency Partnership (www.reegle.info)
- (3) UNECE. 2011. *2nd Environmental Performance Review: Azerbaijan*, Chapter 3 (pp.39)

Transport

- (1) UNEP. 2008. *Fuel quality and vehicle emission standards overview for the Azerbaijan Republic, Georgia, the Kyrgyz Republic, the Republic of Armenia, the Republic of Kazakhstan, the Republic of Moldova, the Republic of Turkmenistan, the Republic of Uzbekistan and the Russian Federation*, Presentation to First Conference on clean fuels and vehicles for Eastern Europe, Caucasus and Central Asia, January 24-25, 2008, Tbilisi.
- (2) GFEI, EESST and REC. 2010. *Working Paper 3/10*. Proceedings of Conference on Cleaner, More Efficient Vehicles: Reducing Emissions in Central and Eastern Europe. Szentendre, Hungary, 5-6 May 2010.
- (3) UNECE. 2011. *2nd Environmental Performance Review: Azerbaijan*, Chapter 3.

Urban development and water

- (1) UNECE. 2011. *Azerbaijan: Environmental Performance Review*. Geneva. Chapter 3, p. 41 describes the water monitoring infrastructure and main monitoring results. Chapters 7: Water Management and Protection of the Caspian Sea, pp.99 ff. and Chapter 8: Waste Management, pp. 119 ff contain many more details.

Climate change and its anticipated consequences

- (1) Government of Azerbaijan. 2010. *Second National Communication to UNFCCC*. Baku www.unfccc.int/resource/docs/natc/azenc2.pdf

Institutional framework

- (1) CENN. 2004. *Assessment of Environmental Impact Assessment (EIA) System in Azerbaijan*, Caucasus Environmental NGO Network, Tbilisi.
- (2) ADB. 2011. *Water Supply and Sanitation Investment Program – Agdash Town Water Supply and Sewerage Subproject; Initial Environmental Examination*. Manila.
- (3) UNECE. 2011. *Azerbaijan: 2nd Environmental Performance Review*. Geneva. Chapter 2.

Financing of environmental activities

- (1) OECD. 2010. *Removing Economic Benefits of Environmental Violations in Azerbaijan*. Paris.
- (2) World Bank. 2010. *Azerbaijan: Country Environmental Analysis: Priorities, public environmental expenditures and institutional readiness*, Internal document, Washington D.C.
- (3) UNECE. 2011. *Azerbaijan: 2nd Environmental Performance Review*. Geneva.

Selected websites

www.azerenerji.com	(Azerenerji JSC)
www.azstat.org	(State Statistical Committee)
www.eco.gov.az	(Ministry of Ecology and Natural Resources)
www.economy.az	(Ministry of Economic Development)
www.maliyye.gov.az	(Ministry of Finance)
www.oilfund.az	(State Oil Fund of Azerbaijan)
www.president.az	(Office of the President)
www.socar.az	(State Oil Company of Azerbaijan)
www.un-az.org	(UNDP Azerbaijan)