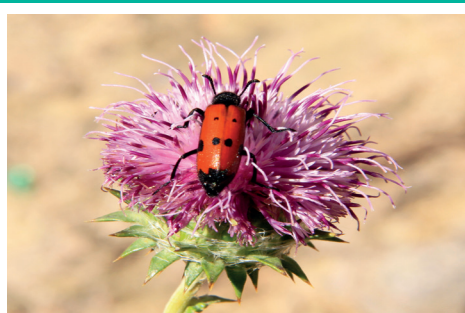


Uzbekistan

Environmental Performance Reviews



Third Review



UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

ENVIRONMENTAL PERFORMANCE REVIEWS

UZBEKISTAN

Third Review



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Foreword

This third Environmental Performance Review (EPR) of Uzbekistan builds on the substantial experience accumulated by the United Nations Economic Commission for Europe (ECE) and its member States in using this tool to regularly assess progress achieved in reconciling national economic and environmental objectives. Over two decades, EPRs have resulted in stronger institutions for environmental management, improved financial frameworks for environmental protection, advanced environmental monitoring and information systems, better integration of environmental concerns into sectoral policies, strengthened public participation and increased international cooperation. They bring together good practices and a wealth of experience from all ECE member States in a mutually enriching learning exchange.

ECE is privileged to have conducted this EPR at the time when Uzbekistan is in the midst of political, economic and social reforms. Its environmental policy develops in leaps and bounds, with the Concept on Environmental Protection until 2030, the Strategy for Transition to Green Economy for the period 2019–2030 and several other documents setting the scene for major environmental issues adopted in the course of 2019. Rich in natural gas, gold, uranium and other mineral resources, Uzbekistan actively attracts international investments, implements large infrastructure projects and is confronted with difficult choices in finding its way to long-term growth based on climate-friendly technologies and the sustainable management of natural resources. The EPR highlights challenges but also opportunities and solutions in this respect.

This review is also special since it comes right after the adoption by Uzbekistan of the national Sustainable Development Goals, targets and indicators based on the global Sustainable Development Goals, targets and indicators. It reflects on the outcomes of adapting the global Goals to national circumstances and equips the Government and interested stakeholders in Uzbekistan with recommendations to inspire future work to implement the 2030 Agenda for Sustainable Development and the national climate change commitments under the Paris Agreement under the United Nations Framework Convention on Climate Change.

I trust that this third review will serve as a powerful tool to support policymakers and other stakeholders in their efforts to improve environmental management and achieve the Sustainable Development Goals in Uzbekistan. ECE wishes the Government of Uzbekistan further success in carrying out the tasks involved in meeting its environmental objectives, including through the implementation of the recommendations in the third review. I also hope that the lessons learned from the peer review process in Uzbekistan will benefit other countries throughout the ECE region.

Olga Algayerova



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Preface

This third EPR of Uzbekistan takes stock of progress made by Uzbekistan in the management of its environment since it was reviewed for the second time in 2009–2010 and assesses the implementation of the recommendations made in the second review.

The EPR covers legal and policy frameworks and environmental compliance assurance mechanisms and addresses the topics of greening the economy, environmental monitoring, public participation and education. Furthermore, it addresses issues of specific importance to the country related to air protection, biodiversity and protected areas, as well as water, waste and chemicals management. The EPR also examines the efforts of Uzbekistan to integrate environmental considerations into its policies in the energy, agriculture, transport, industry and health sectors and to make human settlements more environmentally friendly. The Aral Sea disaster and its consequences for the environment and human health come as a cross-cutting issue throughout the review. The review further provides a substantive and policy analysis of the country's climate change adaptation and mitigation measures and its participation in international mechanisms. It includes an assessment of progress towards relevant targets of the 2030 Agenda for Sustainable Development and provides recommendations related to the achievement of Sustainable Development Goals.

This EPR of Uzbekistan began in September 2018 with a preparatory mission to agree on the structure of the report and the schedule for its completion. A team of international experts took part in the review mission from 25 February to 5 March 2019. In September 2019, the draft report was sent to Uzbekistan for comments. In October 2019, it was submitted to the ECE Expert Group on Environmental Performance Reviews for consideration. During its meeting on 31 October–1 November 2019, the Expert Group discussed the draft report with a delegation from Uzbekistan, focusing on the conclusions and recommendations made by the international experts. The recommendations, with suggested amendments from the Expert Group, were then submitted for peer review to the ECE Committee on Environmental Policy at its twenty-fifth session on 13–15 November 2019. A high-level delegation from Uzbekistan participated in the peer review and the Committee adopted the recommendations in this report.

The Committee and the ECE Secretariat are grateful to the Government of Uzbekistan and its experts who worked with the international experts and contributed their knowledge and expertise. ECE would also like to express its deep appreciation to the German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety and the German Federal Environment Agency for their support by providing funds through the Advisory Assistance Programme, and to Switzerland for its financial support to this review.

Sincere thanks also go to Hungary, Italy, Portugal, the United Nations Environment Programme, the World Health Organization Regional Office for Europe and the Organisation for Economic Co-operation and Development for having provided their experts to this review. Furthermore, ECE is grateful to the United Nations Country Team in Uzbekistan for its support of this review.

ECE also takes this opportunity to thank Austria, Germany, Norway, Portugal, Switzerland and the European Union for their financial support to the EPR Programme in 2018–2019 and expresses its deep appreciation to Estonia, Georgia, Germany, Hungary, Italy, Montenegro, Romania and Switzerland for having provided their experts for the ECE Expert Group on Environmental Performance Reviews, which undertook the expert review of this report.

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Cover page photos:

Four-spotted blister beetle (*Mylabris quadripunctata*) – State Committee on Development of Tourism;

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Greater flamingo (*Phoenicopterus roseus*) – Mr. Vadim Ni;

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Bukhara City – Ms. Alessandra Fidanza.

KEY ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
API	Air Pollution Index
ASBP	Aral Sea Basin Programme
BAT	best available techniques
BISA	basin irrigation system administration
BRI	Belt and Road Initiative
CAREC	Regional Environmental Centre of Central Asia
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CHPP	combined heat and power plant
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLR	complex (landscape) reserve
CLRTAP	Convention on Long-Range Transboundary Air Pollution
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CNG	compressed natural gas
CSAC	Centre for Specialized Analytical Control on Environmental Protection
CSR	corporate social responsibility
EBRD	European Bank for Reconstruction and Development
ECE	United Nations Economic Commission for Europe
EIA	environmental impact assessment
EITI	Extractive Industries Transparency Initiative
ELV	emission limit value
EMEP	European Monitoring and Evaluation Programme
EMS	environmental management system
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESD	education for sustainable development
EU	European Union
EU BREF	EU Best Available Techniques Reference Document
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
GCF	Green Climate Fund
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GIS	geographical information system
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GMO	genetically modified organism
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HPP	hydropower plant
IAEA	International Atomic Energy Agency
IBA	important bird area
ICSD	Interstate Commission for Sustainable Development
ICT	information and communication technologies
ICWC	Interstate Commission for Water Coordination of Central Asia
IFAS	International Fund for Saving the Aral Sea
IFC	International Finance Corporation
IFI	international financial institution
ILO	International Labour Organization
IMF	International Monetary Fund
(I)NDC	(Intended) Nationally Determined Contribution
ISA	irrigation system administration
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
IWRM	integrated water resources management

JSC	joint stock company
KBA	key biodiversity area
LPG	liquefied petroleum gas
LUCF	land use change and forestry
MAB	Man and the Biosphere
MAC	maximum allowable concentration
MDG	Millennium Development Goal
MEA	multilateral environmental agreement
MoU	memorandum of understanding
MSW	municipal solid waste
NBSAP	National Biodiversity Strategy and Action Plan
NCD	non-communicable disease
NGO	non-governmental organization
NHSZ	natural health spa zone
NM	nature monument
NMVOC	non-methane volatile organic compound
NNP	national nature park
NP	national park
NPP	nuclear power plant
NTFP	non-timber forest product
NUU	National University of Uzbekistan named after Mirzo Ulugbek
ODA	official development assistance
ODS	ozone-depleting substance
OECD	Organisation for Economic Co-operation and Development
OSCE	Organization for Security and Co-operation in Europe
PA	protected area
PCB	polychlorinated biphenyl
POP	persistent organic pollutant
PM	particulate matter
PPP	public–private partnership
PPP	purchasing power parity
PRTR	pollutant release and transfer register
PV	photovoltaic
R&D	research and development
RES	renewable energy source(s)
SAICM	Strategic Approach to International Chemicals Management
SanPiN	sanitary rules and norms
SBC	species breeding centre
SBR	state biosphere reserve
SBSNR	state biosphere strict nature reserve
SCEEP	State Committee on Ecology and Environmental Protection
SEA	strategic environmental assessment
SEE	state ecological expertise
SEEA	System of Environmental-Economic Accounting
SEIS	Shared Environmental Information System
SMEs	small and medium-sized enterprises
SR	state reserve
SSESS	State Sanitary and Epidemiological Surveillance Service
SSNR	state strict nature reserve
SUE	state unitary enterprise
TB	tuberculosis
TNC	Third National Communication (under the UNFCCC)
TPP	thermal power plant
TSP	total suspended particles
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UzSPB	Uzbekistan Society for the Protection of Birds
VNR	voluntary national review
WASH	water, sanitation and hygiene
WHO	World Health Organization
WPI	Water Pollution Index
WUA	water user association
WWTP	wastewater treatment plant

SIGNS AND MEASURES

..	not available
-	nil or negligible
.	decimal point
€	euro
US\$	United States dollar
cap	capita
eq.	equivalent
g	gram
Gg	gigagram
GWh	gigawatt-hour
ha	hectare
kg	kilogram
km	kilometre
km ²	square kilometre
kt	kiloton
ktoe	kiloton of oil equivalent
kW	kilowatt
kWh	kilowatt-hour
l	litre
m	metre
m ²	square metre
m ³	cubic metre
Mg	megagram
MW	megawatt
pkm	passenger kilometre
t	ton (1,000 kg)
tkm	ton kilometre
toe	ton of oil equivalent

CURRENCY CONVERSION

Exchange rate (period average)

	Sum per Euro	Sum per US\$
2010	2 104.71	1 586.76
2011	2 386.66	1 715.60
2012	2 430.48	1 890.84
2013	2 785.24	2 096.32
2014	3 070.05	2 312.56
2015	2 851.57	2 570.94
2016	3 279.85	2 965.28
2017	5 917.84	5 167.28
2018	9 535.52	8 070.82

Source: ECE Statistical database, 2019.

Executive summary

Sustainable Development Goals

In the period 2016–2018, Uzbekistan worked intensively to define the national Sustainable Development Goals on the basis of the global Goals. This process has greatly contributed to awareness of the Goals and culminated in the adoption of 16 national goals, 125 national targets and 206 national indicators.

The institutional set-up for coordination of implementation and monitoring of the national Goals is centred around the Coordination Council headed by the Deputy Prime Minister. The Coordination Council is supported by six expert groups. However, its membership is exclusively governmental and the composition of the expert groups is largely governmental.

The effort to define national goals and targets has brought the global Goals closer to the realities and concepts used in Uzbekistan. However, the lack of national equivalents for some global environment-related targets (12.2, 12.3, 15.6, 15.b and several targets under Goal 13) is difficult to explain. Significant changes in the wording of some other targets (12.7 and 15.9) are notable.

Some national environment-related indicators have a more limited scope than the corresponding ones in the global indicator framework. Examples include indicators 6.4.1, 7.2.1, 7.b.1, 11.4.1, 12.5.1, 15.4.1 and 15.8.1. A significant drawback is that Uzbekistan did not nationalize the global indicator 3.9.1, on mortality from air pollution, in its internationally accepted wording.

Challenges in monitoring of the Goals include the non-availability of data and methodologies for the vast majority of national environment-related indicators. For example, there are no data on indicators 6.6.1, 7.1.2, 8.4.1, 8.4.2, 12.6.1, 15.2.1, 15.7.1 and 15.c.1. Compatibility of national and international methodologies for data collection is another challenge particularly relevant for indicators 7.3.1 and 12.4.2.

Since 2019, Uzbekistan runs the national Sustainable Development Goals portal. The portal provides centralized access to information resources on the implementation of national goals and targets. As at May 2019, the portal provides data for about one third of the national indicators.

The State Committee on Statistics collects a significant amount of gender-related data but no gender and environment statistics are collected. This is an important area to develop considering the requirements for gender-disaggregated information for monitoring the implementation of the 2030 Agenda for Sustainable Development (2030 Agenda).

Addressing persistent regional differences is crucial for the achievement by Uzbekistan of the 2030 Agenda. Within the country, the Aral Sea region, which includes the Republic of Karakalpakstan and Khorezm Oblast, stands out in terms of the multiple impacts on it of the Aral Sea disaster. For example, in 2017, the incidence of antenatal, perinatal and post-neonatal health conditions and complications in the Aral Sea region exceeded the national average by 50 per cent.

Another crucial aspect for the achievement of the 2030 Agenda is to leave no one behind. Examples in this respect are the unequal distribution of health-care services throughout the country and the lack of qualified health professionals in remote rural areas, which present important challenges for achieving progress with targets 3.1 and 3.2, on mothers' and children's health. Under current health-care financing, differences in income among population groups result in further health inequalities, calling for urgent actions under target 3.8.

Legal, policy and institutional framework

In 2019, Uzbekistan is in the midst of intensive reforms of its policy and legal framework, including in the environmental area. Achievements include the adoption in 2019 of several long-term policy documents, such as the Concept on Environmental Protection until 2030, Strategy for Transition to Green Economy for the period 2019–2030, Strategy on Municipal Waste Management for the period 2019–2028 and Strategy for the

Conservation of Biological Diversity for the period 2019–2028. Several new draft laws are in the process of preparation and the country is about to embark on drafting an environmental code.

The ongoing development of the entire national policy and legal framework represents opportunities for mainstreaming environmental protection throughout sectoral policies and legislation. The integration of environmental requirements into sectoral legislation and policies is more advanced in the energy and agricultural sectors and has started in the transport, housing and infrastructure, industry, health and tourism sectors.

Uzbekistan does not yet apply the strategic environmental assessment (SEA) tool to evaluate environmental impacts of future sectoral strategic documents. Awareness of the SEA tool is limited in the country. Introduction of the SEA tool could help Uzbekistan to enhance policy coherence for sustainable development in line with target 17.14 of the 2030 Agenda.

The 2019 Concept on Environmental Protection until 2030 sets long-term goals and priorities in environmental protection. Opportunities for further development of the national policy framework on environmental protection include such areas as climate change, low carbon development, environmental compliance and enforcement, forest protection, soil protection and environmental noise. At subnational level, almost no strategic documents on environmental protection have been adopted by local authorities, which represents another area for development.

The national environmental authority – the State Committee on Ecology and Environmental Protection (SCEEP) – is well respected among governmental authorities. At the same time, the establishment of new, separate ministries for several major economic sectors during the period 2017–2019 demonstrates the intention of Uzbekistan to rapidly develop its economy. In these circumstances, effective horizontal coordination mechanisms and meaningful public participation become of utmost importance to ensure that environmental protection is not set aside.

Regulatory and compliance assurance mechanisms

Uzbekistan is working to improve the state ecological expertise (SEE) and environmental impact assessment (EIA) procedures, with some changes to the legal and regulatory framework already adopted and others under consideration. As at 2019, the short time limits for conducting SEE do not provide sufficient time to take due account of the outcomes of the EIA. Other areas in need of improvements are screening, scoping, effective public participation and transboundary impact assessment.

In 2017–2018, new inspection procedures were introduced with a focus on the use of risk analysis in inspection planning and the reduction of administrative burden on businesses. This has led to a change in the focus of monitoring of environmental compliance, from areas that became restricted for inspections to areas that were not subject to restrictions, at the expense of potentially overlooking significant violations.

The national enforcement policy aims at reduction of inspection checks by governmental bodies and more active engagement of citizens in compliance monitoring. However, there are no procedures for citizens' involvement in environmental enforcement. Citizens' environmental concerns focus on smaller projects in the close vicinity of their homes. Information on inspection activities by SCEEP is not publicly available.

Any citizen can apply for the status of a public environmental inspector. From 2017, thousands of citizens received training and obtained identity cards as public environmental inspectors. There are no official statistics on inspection and enforcement activities by these inspectors.

The level of administrative fines is too low to act as a deterrent to violations since the economic benefits from the illegal activity clearly outweigh the size of fines. One example is illegal trade in species under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which can often be an organized international crime but would only entail a fine of 0.3–1.0 minimum salary for a citizen and 1–3 minimum salaries for an official.

The 1992 Law on Nature Protection includes provisions on compulsory and voluntary environmental insurance. In the absence of subsidiary legislation, the mechanism of environmental insurance does not function.

Numerous companies have declared their commitment to corporate social responsibility (CSR). However, the low level of public environmental awareness does not incentivize companies to integrate environmental aspects into their CSR policies.

No national environmental labelling scheme exists as at 2019. This area is expected to develop following the adoption in 2019 of the Regulation on voluntary eco-labelling of products.

The Government started promoting environmental management system (EMS) certification, due to the opening market for foreign investments. A number of companies provide services in Uzbekistan to deliver ISO 14001 certification.

Greening the economy

Uzbekistan demonstrates marked improvement in the business climate since the launch of economic reforms. In the World Bank's Ease of Doing Business rating, the country ranked 76 (out of 190 countries) in 2018, up from ranking 166 in 2011. Well-designed government policies can help catalyse foreign direct investment (FDI) in directions that contribute to promoting environmentally sustainable growth.

The system of pollution charges has remained largely unchanged since 2010. The number of air and water pollutants covered by the system remains very large. Since 2019, pollution charge rates are better protected against erosion through inflation. At the same time, pollution charges are mainly designed to generate revenue for the environmental fund and the state budget.

The abstraction of water from natural sources is subject to payment of a water use tax. Water used for irrigation in agriculture is not subject to taxation. There are a number of other tax exemptions that weaken incentives for more rationale use of water.

The Government has liberalized prices of imported higher quality fuels. Prices of domestically produced motor fuels continue to be regulated and subsidized. Very low tax rates do not provide incentives for fuel savings.

The Government has made progress on reform of tariffs for utility services (energy, water, waste) by bringing them closer to cost-recovery levels. Nevertheless, tariffs remain below cost-recovery levels and provide across-the-board benefits to all households, which mainly favour those with higher incomes.

Progress is observed in reducing fossil fuel subsidies relative to total GDP (from 30 per cent of GDP in 2010 to 10.9 per cent of GDP in 2017). However, this proportion is still very high. This makes target 12.c of the 2030 Agenda, on the rationalization of fossil fuel subsidies, of crucial importance for the country.

Uzbekistan applies investment tax credits and reduced import taxes for renewable energy technologies. Traditional support schemes such as feed-in tariffs and competitive bidding/auctions have not been used so far to support the use of renewable energy sources (RES).

The 2018 Law on Public Procurement paves the way for greening the public procurement that accounts for about one third of the consolidated state budget expenditures in Uzbekistan. Capacity-building of officials involved in procurement is key to ensure the effectiveness of the Law and achieve progress with target 12.7 of the 2030 Agenda.

Environmental protection expenditures (excluding off-budget funds) accounted for 0.06 per cent, on average, of total general government expenditures in the period 2012–2019. The proportion of environmental protection expenditures relative to GDP was even smaller, at some 0.02 per cent, in the same period. These numbers are extremely low, especially taking into account the environmental challenges faced by the country.

In 2017, Uzbekistan reformed the system of environmental funds by merging the Republican Fund and 14 regional funds into the Fund for Ecology, Environmental Protection and Waste Management. However, the operational rules and procedures of the Fund are not fully transparent.

Uzbekistan started developing the institutional and legal framework for the establishment of public–private partnerships (PPPs), in line with target 17.17 of the 2030 Agenda. The intention is to use PPPs in areas such as the provision of public utility services and financing of public infrastructure. The major deterrent is the lack of experience in the use of PPPs.

Environmental monitoring, information and science

Environmental monitoring activities are conducted according to the five-year programmes of environmental monitoring. Key areas for development are automation and digitalization of monitoring and the introduction of PM₁₀ and PM_{2.5} monitoring. An integrated environmental information system is not available.

Most analytical laboratories under ministries and agencies involved in environmental monitoring lack accreditation. Regional laboratories under the Centre of Hydrometeorological Service (Uzhydromet) analyse air pollution samples but lack capacity to analyse water and soil pollution samples.

Most biodiversity monitoring is conducted in protected areas (PAs), in particular those with legal status and dedicated personnel. As of 2018, the populations of some rare and threatened Red Book species are also monitored outside PAs. Long-term research on wild species of flora and fauna suffers from the lack of continuity. No modern forest inventory has been carried out since 1987.

Most environmental reports and bulletins produced by government agencies in charge of environmental monitoring activities are only shared among government agencies and not made publicly available. Except for two tables, the State Committee on Statistics does not upload to its website the environmental statistics it collects.

As at 2019, the national report on the state of the environment and use of natural resources has not been produced since 2013. The last report, covering the period from 2008 to 2011, was largely descriptive and is not available online.

Uzbekistan has placed innovation at the heart of its economic development strategy. Nevertheless, domestic research and development (R&D) expenditure corresponded to 0.2 per cent of GDP in 2017 compared with a global average of 1.7 per cent in 2014 and Organisation for Economic Co-operation and Development (OECD) average of 2.37 per cent in 2017, deferring Uzbekistan's progress on target 9.5 of the 2030 Agenda. Financing for scientific research and innovation in support of environmental protection is not defined as a priority.

The Scientific and Research Institute on Environment and Nature Protection Technologies under SCEEP has extensive experience in developing technologies for wastewater treatment and reduction of industrial emissions. The Institute was assigned additional responsibilities in 2018 but struggles with the lack of funding for applied research.

Access to information, public participation and education on the environment

The majority of information and data on the environment is not made available online. Printed publications with information on the environment are disseminated primarily among governmental institutions. The public at large is not sufficiently aware of what information on environmental matters is, its right to request it and the procedures to do so.

Since 2018, the procedures for operation of environmental non-governmental organizations (NGOs) and the oversight of the activities of NGOs have been simplified. However, hindrances to the activities of environmental NGOs remain, including for receipt of international funding.

The public at large and NGO representatives are poorly engaged in decision-making on environmental matters. Mostly, a small circle of NGOs working closely with governmental authorities is invited to participate in consultation processes. Detailed procedures to enable effective public participation in decision-making on environmental matters are lacking.

Individuals and environmental NGOs have the opportunity to file cases on environmental matters and appeal actions (or inaction) of governmental authorities in the courts. However, there are no precedents of environmental NGOs or representatives of the public doing so.

Public servants working in the environmental and other sectors with an impact on the environment lack sufficient expertise and capacity to enable effective provision of information and public participation in decision-making on environmental matters. The capacity of the judicial system to provide access to justice on environmental matters has not had the opportunity to develop.

Environmental education is well developed. Education for Sustainable Development (ESD) is not integrated into the education system. The country adopted the Concept of Education for Sustainable Development in 2011 but it has not prompted actual changes in the education system. Without ESD, achieving many goals and targets of the 2030 Agenda will be challenging for Uzbekistan.

Neither SCEEP nor the three ministries in charge of education issues have a clear mandate to work on ESD. The Coordination Council on Education for Sustainable Development, established in 2011, discontinued its activities in 2014. The driving forces for ESD are the universities and environmental NGOs.

Implementation of international agreements and commitments

Uzbekistan is undergoing a major transformation in its relationship with the international community. It is committed to enhanced regional cooperation in Central Asia. The country has changed its position on water–energy issues. Bilateral cooperation on transboundary waters and the environment has greatly intensified in the past few years.

Since 2017, Uzbekistan has intensified cooperation with donors on environmental and sustainable development issues. This is manifested in the growing partnerships in terms of both the amount of financing and areas of engagement.

Uzbekistan has a proven high capacity for implementation and financial management of Global Environmental Facility (GEF) projects. About US\$37.524 million of GEF funding was utilized in the period 2010–2018.

A framework agreement with the European Bank for Reconstruction and Development (EBRD) was concluded to enable the operation of the Environmental Remediation Account for Central Asia (ERA). This will allow the remediation of Charkesar and Yangiabad uranium tailings – the most dangerous sites left by the past uranium production.

In 2018–2019, Uzbekistan became party to the Paris Agreement, the Stockholm Convention on Persistent Organic Pollutants and the Cartagena Protocol on Biosafety. Nevertheless, the country is not a party to a number of relevant global and regional multilateral environmental agreements (MEAs).

MEA implementation remains a problem, related to insufficient administrative capacity, significant gaps in critical information and deficiencies in coordination. There are no effective systemic coordination mechanisms on environment-related issues that are the subject of international, regional or bilateral cooperation. The country has had difficulties fulfilling its reporting obligations under several MEAs.

The Multi-Partner Human Security Trust Fund for the Aral Sea Region is an emblematic initiative of Uzbekistan. It aims to streamline the efforts of the Government and the international community to address the consequences of the Aral Sea disaster. Efficient functioning and transparency in the operation of the trust fund are prerequisites for attracting interest from the international community.

In 2016, the Western Tien-Shan transboundary site (Kazakhstan–Kyrgyzstan–Uzbekistan) was inscribed onto the World Heritage List. It is the first natural heritage property for Uzbekistan. A trilateral memorandum of cooperation signed by the three countries in 2019 foresees the establishment of a coordinating working group and a monitoring programme for the property.

Climate change

The country fulfils its reporting obligations and has submitted three national communications under the United Nations Framework Convention on Climate Change (UNFCCC). However, the newest data on greenhouse gas (GHG) emissions available in 2019 are from 2012. The process of preparing a GHG inventory is not a regular activity.

In the period 1990–2012, there has been a 13.7 per cent increase in overall GHG emissions and a 21.6 per cent decrease in emissions per capita. In 2012, the energy sector accounted for 82 per cent of GHG emissions. Within the energy sector, most GHG emissions come from fuel combustion.

The land use change and forestry (LUCF) sector is the greatest contributor to CO₂ removals. In 2012, the sector's contribution to emissions was -2.9 Mt CO₂-eq. This translates in net sinks corresponding to 2.7 per cent of the total CO₂ emissions, and 1.4 per cent of total GHG emissions. A marked increase in removals from 2008 onwards is due to intensive afforestation in desert areas.

The 2017 (Intended) Nationally Determined Contribution ((I)NDC) of Uzbekistan stipulates a carbon intensity target, namely, to decrease specific emissions of GHGs per unit of GDP by 10 per cent by 2030, with 2010 values as reference values. Considering the strong growth of the economy and the projected growth of the population, it is very probable that overall GHG emissions will increase significantly, even if the mitigation target of the (I)NDC is reached.

Climate change issues have, to a certain extent, been incorporated into sectoral legislation and strategic documents. Uzbekistan does not have legislation to specifically address climate change and is also lacking an overall strategic document on the issue.

The energy sector is the focus of most mitigation measures in the country. Mitigation measures mostly concern improving energy efficiency, including energy efficiency in buildings, and increasing the share of renewable energy in the energy mix.

The most important measures relevant to climate change in the forestry sector are the massive afforestation campaigns in the dried bed of the Aral Sea. These forest plantations are essential in mitigating dust storms and can provide economic opportunities to the impoverished communities that once relied on fishing.

Uzbekistan has been very successful in mobilizing international climate finance sources in the past years. The country has also had success in hosting Clean Development Mechanism (CDM) projects.

The 2019 Strategy for Implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030 in the Republic of Uzbekistan defined priority areas for disaster risk reduction. Local disaster risk reduction strategies are lacking.

Climate change issues have started being integrated into the curricula of secondary school education. They are not yet integrated into the curricula of primary education, vocational training and higher education. Most awareness-raising activities are implemented in the framework of donor-financed projects.

Air protection

Uzbekistan has a comprehensive air monitoring network with 63 fixed posts and measurement of 13 different substances. Development of monitoring of fine dust (PM₁₀ and PM_{2.5}) by automatic equipment, along with acquiring technical support for compiling emission inventories, are urgent priorities.

Compared with World Health Organization (WHO) and European Union (EU) air quality standards, the air quality standards in Uzbekistan are the same for NO₂ and ozone, more stringent for CO and less stringent for SO₂. For PM₁₀ and PM_{2.5}, no air quality standards are defined in Uzbekistan.

Although PM₁₀ and PM_{2.5} data are scarce in Uzbekistan, the probability that WHO Air Quality Guidelines for the mean concentrations of PM₁₀ are exceeded in cities is high. In a few cities, the annual dust concentration exceeded the national standard for dust.

An important part of the air pollution by dust particles is due to natural causes. Natural emissions of aerosols to the atmosphere by sandstorms from the Karakum and Kyzylkum Deserts and from dry parts of the Aral Sea, which transport dust from the western to the eastern part of the country, and also transboundary air pollution by dust, cause high background levels of dust.

The industrial emissions of SO₂, NO_x and total suspended particles (TSP) account for 40 per cent, 5 per cent and 38 per cent of the total national emissions respectively. In industrial cities such as Angren, Almalyk, Fergana and Navoiy, emissions from industry and mining lead to relatively high values on the Air Pollution Index used in Uzbekistan.

Best available techniques (BATs) to abate air pollutant emissions as described in guidance documents developed under the Convention on Long-Range Transboundary Air Pollution or the EU Industrial Emissions Directive are not applied in Uzbekistan. Emission reduction plans for air-polluting industrial sectors are not developed.

In 2016, 19 per cent of the emissions of SO₂ and 70 per cent of the emissions of NO_x from stationary sources were caused by thermal power plants (TPPs). The emission limits defined for specific plants in Uzbekistan are generally less stringent in comparison with EU emission standards based on BATs. On a positive note, the modernization of old TPPs has started.

The agricultural sector is the largest source (99 per cent) of emissions of NH₃. Measures to control ammonia emissions are not yet widely applied.

Air pollution from the residential sector contributes to bad air quality. Poor maintenance of district heating installations and the lack of insulation of buildings lead to low energy efficiency. The use of firewood and coal in individual stoves and furnaces with low emission heights is another contributor to poor air quality.

Uzbekistan progressed with reducing the consumption of ozone-depleting substances (ODS). In 2017, consumption decreased to 0.87 ozone-depletion-potential (ODP) tons (100 per cent hydrochlorofluorocarbons (HCFCs)), which represents a reduction of 98.8 per cent from baseline (74.7 ODP tons in 1989). A slight increase of consumption to 2.53 ODP tons was observed in 2018.

Water management

The majority of surface water bodies are considered to be moderately polluted under the Water Pollution Index used in Uzbekistan. The most polluted watercourses in 2018 were the Siab collector channel in Samarkand and the Salar channel downstream of the cities of Tashkent and Yangiyul. Groundwater quality is considered generally satisfactory. Average non-compliance of drinking water samples in the period 2012–2017 is in the range of 5–10 per cent per year for microbiological analysis and 10–15 per cent for chemical analysis.

The current annual demand for water in all sectors of the economy of Uzbekistan is estimated at 64 km³. Forecasts show that the demand for drinking water supply and in industry and rural areas will increase, while demand in irrigated agriculture, the current share of which is around 89–92 per cent of total water use, will decrease.

Since 2010, Uzbekistan has made progress in the area of investment in new capital infrastructure to increase access to drinking water and sanitation. Investments were also made for refurbishment of irrigation infrastructure.

According to the State Committee on Statistics, access to centralized drinking water supply was 76 per cent nationwide and 63 per cent in rural areas at the end of 2017. According to the Ministry of Housing and Communal Utilities, only about 63.5 per cent of the population nationwide were covered by centralized drinking water supply services in early 2019. While work is being done to improve access, quality of service remains an issue.

According to the State Committee on Statistics, at the end of 2017, 35.8 per cent of the housing stock in the country had sanitation services provided, and only 10.8 per cent in rural areas. According to the Ministry of Housing and Communal Utilities, in early 2019, only about 15.6 per cent of the population were connected to centralized sewerage services.

In terms of water-use efficiency, Uzbekistan reports US\$1.2 per m³ of water for 2015. This figure is the lowest of all countries that reported against the global Sustainable Development Goals indicator 6.4.1 for 2015.

The formation of the Ministry of Water Management and the Ministry of Housing and Communal Utilities in 2017–2018 adds focus to the key issues of water resources management and water supply and sanitation. The need to move towards the principles of integrated water resources management (IWRM) and greater stakeholder involvement remains, along with the opportunities to better coordinate the activities of various actors and harmonize the use of data collected.

The policy framework does not sufficiently focus on the use of economic instruments and cost recovery with regard to the use of groundwater and surface water. In addition, linkages between land use planning and water management are not sufficiently present in the current policy framework. The policy framework does not require the development of river basin management plans (RBMPs), even though some progress was achieved in this area.

Waste and chemicals management

Uzbekistan is reforming its waste management policies. In 2017–2018, the responsibilities of SCEEP in waste management were strengthened and respective institutional arrangements were put in place. New institutional arrangements and dedicated efforts allowed the country to increase the coverage of the population by waste services from 22 per cent in 2016 to 53 per cent in 2018.

The Strategy on Municipal Waste Management for the period 2019–2028 sets well-defined goals until 2029 and should support the achievement of target 12.5 of the Sustainable Development Goals. However, all data on waste are estimated and incomplete. The 2002 Law on Waste does not respond to the needs of the new system of waste management.

The number of dumpsites in Uzbekistan is known but details of their operation are not yet collected and summarized. Cities other than Tashkent dispose of their waste on allocated sites, usually on the city outskirts. Such sites do not include barriers controlling pollution and are regularly set on fire to make space for additional waste. Replacing existing dumpsites by controlled landfills is a priority recognized by the Government.

Sorting of municipal solid waste (MSW) is not yet formally introduced as a national policy, but the informal sector and private companies are active in recovering recyclables from waste. The recycling rate was estimated to be 5–10 per cent in 2017 but the actual recycling rate could be higher. The first waste sorting plant was put into operation in 2018.

Uzbekistan classifies hazardous waste based on four hazard classes that cover 134 types of waste. This waste classification is not compatible with international practice.

Requirements on safe handling and treatment of medical waste are in place. Public hospitals face challenges in complying with the requirements, due to limited funds being allocated in hospital budgets for medical waste management. A specialized service for collection and treatment of medical waste is not available.

Uzbekistan does not possess the expertise and financial resources to deal with the impacts of waste generated in the past, such as radioactive waste, obsolete pesticides and other persistent organic pollutants (POPs). The national POPs inventory dates back to 2009. Cooperation with the international community is key to addressing environmental and health risks from these types of waste.

The National Profile on Management of Chemical Substances was prepared in 2012 and contains data from 2008, 2009 and 2010. It does not provide enough information on chemicals management to enable policy development.

Uzbekistan does not have specific legislation on chemical emergency preparedness and response. Chemical emergencies are included in the general framework of technogenic emergencies. Chemicals management is not included as part of environmental policy.

Biodiversity and protected areas

The adoption of the 2019 National Biodiversity Strategy and Action Plan (NBSAP) is a step forward for protection of biodiversity and implementation of the country's international commitments on biodiversity. However, only a few rare and threatened fauna species, and no flora species, are currently covered by single species conservation plans. No national wetland policy is in place. The development and implementation of policies on biodiversity conservation is seriously hampered by the unavailability of reliable data.

The populations of widespread wild animal species are either stable or growing in numbers. However, there are decreasing trends in populations of several globally threatened or locally endemic fauna species. This is the case for the saiga antelope, marbled polecat, Pallas's cat, Saker falcon, sociable lapwing, Egyptian vulture and many others.

To prevent further biodiversity loss, Uzbekistan runs several rare and threatened species breeding centres. The Species Breeding Centre "Jeyran", established over 40 years ago, specializes in breeding goitered gazelle. Two smaller nurseries were established in 2007 and 2008 for breeding the Asian houbara bustard. Zarafshan State Strict Nature Reserve (SSNR) operates a facility for breeding Bukhara deer.

Uzbekistan makes considerable efforts to increase forested areas through reforestation and afforestation works. In the period 2010–2018, forested areas increased from 6.63 per cent to 7.26 per cent of the country's territory. More and more areas are being placed in the state forest fund land category as land potentially suitable for afforestation.

Formally, the protected area (PA) system encompassed 13.2 million ha or 29.4 per cent of the country's territory on 1 January 2019. However, it predominantly comprises state forest fund lands. PAs in the common understanding of this term cover less than 2.1 million ha or only 4.63 per cent of the country's territory.

There is a striking disparity in the geographical distribution of PAs among the regions of Uzbekistan. The PA network is not yet ecologically representative, meaning that it does not cover all main representative landscapes and ecosystems. In addition, it does not encompass the habitats of several rare, endemic and threatened species.

The most effective protection of biological and landscape diversity is ensured only in PAs granted legal entity status, which have their own managing body and field personnel. The state budget funding for PAs is insufficient to implement effective nature conservation.

There are some positive examples of the ecological connectivity of PAs on a local scale. However, the national PA system of Uzbekistan is still not a "network" in the common meaning of the term. The concepts of ecological networks and ecological corridors are absent from the 2004 Law on Protected Natural Territories.

The environmental disaster in the Aral Sea region, formerly abundant in flora and fauna species, resulted in a sharp decrease in biological diversity. The Government's efforts focus on protection of biodiversity that survived the disaster and rehabilitation of aquatic and wetland ecosystems in the Amu Darya River delta through engineering works aimed at landscaping the delta for the restoration of aquatic and wetland ecosystems and stabilizing the water regime. The Government's efforts also aim at stabilization of the soils of the dried bed of the Aral Sea.

Uzbekistan progressed with identification and description of important bird areas (IBAs) and key biodiversity areas (KBAs). However, only 17 of the 52 IBAs and 12 of the 36 KBAs either partially or entirely overlap existing PAs.

Neither of the two Ramsar sites, nor the PAs overlapping the territories of the Ramsar sites, have management plans. The submission of nomination for a new Ramsar site, Tudakul and Kuymazar Water Reservoirs, has not been completed.

Energy and the environment

Primary energy supply is concentrated in fossil fuels, mainly natural gas, with some hydropower. The development of local fuels such as natural gas and coal remains a goal of national energy policies.

Information on accidents occurring in the natural gas industry focuses on economic aspects rather than environmental impact. Nevertheless, gas leakages cause the release of carbon monoxide, carbon dioxide, nitrogen oxides, sulfur compounds, methane, methanol and other pollutants. In the past few years, several natural gas processing facilities introduced new technologies to improve environmental protection.

The volume of gas flaring has declined from 1.494 bcm in 2013 to 0.788 bcm in 2018. The decrease was caused not only by reduction of oil production but also by measures implemented by oil production companies. The limited market and low prices for commercial gas, especially in remote areas, result in some gas still being flared.

Coal mining is carried out at the open-pit Angren mine and underground mines Baisun and Shargun. Angren deposit is developed by surface mining, with associated environmental problems such as large-scale land use, overburden removal and disposal, disturbance of hydrology, acid mine drainage and fugitive dust. For underground mines in the Baisun and Shargun deposits, the main environmental issues are mine water drainage, methane emissions and fugitive dust.

Mining of uranium ore is carried out by the in-situ leaching (ISL) mining process. Although some environmental impacts are minimized under the ISL method, such as there being no need for large uranium tailings, the productive solution has to be disposed of after the initial treatment. One of the challenges in the application of ISL is to prevent contamination of groundwater.

In 2019, there is no renewable energy (other than hydro) generation in Uzbekistan, except for some off-grid and/or small-scale units. The country's enormous technical potential for the use of solar energy is not used. Uzbekistan has set a target of 19.7 per cent of total energy production being produced by RES by 2025. Most of this (i.e. 15.8 per cent) is to come from hydropower.

The Government is taking measures to increase energy efficiency. Standards for energy management of industrial production and energy labelling of household equipment have been introduced. The introduction of energy-efficient technologies in the system of street lighting and energy-saving lamps for residential and public buildings is being carried out.

Despite these measures, the energy intensity of the economy remains high. No measures to increase energy efficiency in buildings and transport have been introduced. In industry, a World Bank project has greatly contributed to energy efficiency in many industrial enterprises but energy losses in the industrial sector at large remain high.

Electricity transmission assets have not been properly maintained and upgraded, affecting the delivery of reliable power supply to domestic customers. There is a high level of electricity losses: transmission system losses are 18 per cent and distribution losses are 14 per cent. Modernization of existing facilities is ongoing, along with the construction of additional generation capacities.

Uzbekistan intends to build a nuclear power plant (NPP) in order to meet the growing needs of the economy for energy resources. The Government plans to organize a national EIA and conduct a dialogue with neighbouring countries. The organization of a transboundary EIA is not planned. The country is not party to several key conventions on nuclear safety.

Lake Tuzkan, identified as a priority location for the NPP, is part of the Aydar-Arnasay Lake System, which was declared a Ramsar site in 2008. Construction of an NPP in the Ramsar site would require sound justification and may result in the need to delete or restrict the boundaries of wetlands already included in the Ramsar List, with these decisions potentially damaging the image of the country in the international arena.

Agriculture and the environment

Agriculture accounts for about 32 per cent of GDP and 27 per cent of employment. In 2018, crop production made up 53.2 per cent of total agricultural production, while animal husbandry accounted for 46.8 per cent.

In the period 2009–2017, water use in agriculture remained at around 89–92 per cent of total water use. Around one third of the total water use in this sector is lost. By reducing or eliminating water losses, the country would be able to solve the problem of a forecast water deficit and save enough water to mitigate the fluctuations in annual available water quantity caused by the variability of precipitation.

Crop diversification has been central to governmental policies in the sector in the past decade. Switching to higher value crops should decrease water consumption because water demand for cotton growing is higher than water demand for irrigation of most other crops. However, these positive gains may be nullified by the poor state of irrigation infrastructure.

The Government started subsidizing the installation by farmers of water-saving techniques, in particular, drip irrigation. However, water-saving techniques are clearly not expanding at an adequate pace. In 2019, the total area under water-saving techniques amounted to only 9.6 per cent of irrigated lands.

Agriculture also puts pressure on water quality. Farmers regularly “wash” their fields with water to decrease soil salinization. The water used for “washing” is directed back to the irrigation channels and rivers, even though it might contain pesticides and other pollutants.

The use of fertilizers in Uzbekistan is 60–70 per cent higher than the world average. The high consumption is a basic precondition for agricultural production on the country’s irrigated lands, since the soil fertility would be very low without the use of fertilizers.

Organic fertilizers are widely used, their consumption being 20 times higher than that of mineral fertilizers. Manure makes up a significant proportion of the organic fertilizers.

In the past decade, the Government has actively promoted biological plant protection. More than 1,500 biological laboratories for processing crops by biological methods have been created in the country. In 2017, the amount of pesticides applied to arable land was only 0.4 kg/ha, whereas, in the final years of the Soviet Union, it was 15–19 kg/ha.

The agricultural sector is the second biggest emitter of GHGs, accounting for 11 per cent of emissions in 2012. Agricultural GHG emissions increased by 27.1 per cent in the period 1990–2012. Methane emissions from agriculture increased by 98.2 per cent in the same period, due to an increase in the number of cattle and sheep.

Organic production is already ongoing in the country. Over 5,600 ha are certified for organic products by foreign certification organizations. The legal framework for organic agriculture is still lacking, so the country does not issue certifications for organic agricultural products. The use of genetically modified organisms (GMOs) is not regulated at the level of laws.

Agricultural extension services are not systematically provided. The development of extension services remains important for improving the sector’s performance towards productive and sustainable agriculture and resilience to climate change, in line with target 2.4 of the 2030 Agenda.

Transport and the environment

With a 9.4 per cent contribution to GDP in 2017, the transport sector attracts significant investment, which has already resulted in the improvement of the country’s scores under the Logistics Performance Index, most prominently with regard to infrastructure. The investments are also helping to improve the environmental performance of the sector.

Road transport is by far the dominant mode of transport, with a market share of 98.3 per cent of passenger transport and 88.3 per cent of freight transport in 2018. However, road vehicles are using low quality fuels

leading to negative effects on the environment, among other impacts. This is facilitated by fossil fuel subsidies through regulated prices that incentivize the use of the lower quality fuels.

Many vehicles run on natural gas or liquefied petroleum gas (LPG) as a result of local resource availability and the fiscal advantage associated with certain fuels. Many compressed natural gas (CNG)/LPG fuel systems are retrofitted to vehicles that originally operated on gasoline or diesel. The quality, reliability and emissions from such retrofitted systems can be problematic unless the right measures are put in place to ensure they operate appropriately.

The use of public transport in cities remains limited. The largest cities are investing in renewing their fleets and improving accessibility of public transport in line with target 11.2 of the 2030 Agenda, as well as in making the alternative modes of transport more attractive. However, these initiatives are not supplemented by dedicated policies and action plans.

Investments in the railway sector are under way to improve its efficiency and reduce the environmental impact of transport as a whole. In 2019, the locomotive fleet is about 28 per cent electric and 72 per cent diesel powered.

The aviation sector is also in the midst of reforms. Efforts in this area have focused on the management aspects, modernization of the fleet to reduce CO₂ and noise emissions and provision of flight services in accordance with international standards. Domestic aviation remains very limited.

In terms of air pollution, the transport sector was the highest NO_x emitter, accounting for 63 per cent of NO_x emissions in 2016. The sector was responsible for 9.6 per cent of TSP emissions in 2016.

Transport accounted for 12.4 per cent of GHG emissions from fuel combustion or 6.6 per cent of total GHG emissions without LUCF in 2012. In 2012, the largest contributors to CO₂ emissions from transport were road vehicles (63 per cent).

The transport sector is expected to grow dramatically in the coming decades, with resulting growth in CO₂ emissions. The For Future Inland Transport Systems (ForFITS) tool demonstrates opportunities for decoupling economic growth and CO₂ emissions in Uzbekistan.

The number of road fatalities has remained steady since 2015 with only minor fluctuations, at around 80 fatalities per million inhabitants. The number is not decreasing in Uzbekistan and is well below the requirements in target 3.6 of the 2030 Agenda. The enforcement of driving and road safety laws and regulations presents challenges.

Industry and the environment

In 2018, the industrial sector accounted for 23.3 per cent of GDP, of which manufacturing industries represented 15.5 per cent and mining and quarrying 6 per cent. The share of manufacturing industry in the structure of industrial output reached 76.6 per cent in 2018.

Uzbekistan aims at diversification of its economy through the development of non-resource-based sectors and increasing the manufacturing of higher-value-added products. The modernization and diversification of leading industries and introduction of innovation are already taking place.

Policy documents on the development of specific industrial sectors do not include environmental safeguards. The lack of clear environmental, health and safety and social management objectives lessens the contribution of the sector to the well-being of local communities.

There is no consistent trend in the total volume of industrial air emissions since 2009. However, monitoring data show continuous exceedance of emissions of nitrogen oxides, sulfur dioxide, carbon oxides, ammonia and dust, mainly by chemical industry, energy and construction industry enterprises.

Many of the largest enterprises are carrying out modernization to reduce air emissions, making the country better prepared to achieve target 9.4 of the Sustainable Development Goals. However, technological upgrading is still lagging behind in small and medium-sized enterprises (SMEs).

Mining, chemicals, oil and gas, electricity and the production of construction materials are among the country's most energy-intensive industries. National policy documents set enterprise-specific targets for the reduction of energy consumption. Impressive improvements have been achieved through the implementation of the World Bank's Energy Efficiency Facility for Industrial Enterprises Project, which finances energy-saving investments in both large enterprises and SMEs.

The industrial sector's share of total water use was negligible (on average, 1.4 per cent in the period 2009–2017), but water pollution from the chemical, oil, manufacturing and metallurgical industries is a major issue. Many industrial enterprises do not have wastewater treatment facilities on their premises or do not carry out preliminary treatment. Industrial wastewater is often discharged directly into rivers or into urban sewerage systems.

Approximately 100 million m³ of industrial waste is generated in the country annually. Due to the insufficient number of landfills for storage and disposal of industrial waste, there is a widespread practice of dumping in unauthorized places. In recent years, several mining and chemical enterprises have shifted to technologies that allow more efficient extraction and production and generate less hazardous waste.

Soils are severely degraded by mining activities, which remove large amounts of soil and vegetation for open pit mining. Furthermore, soil contamination with heavy metals is observed in the areas located in close proximity to industrial enterprises.

Artisanal and small-scale mining can be the source of large releases of mercury, which can have serious health impacts. The number of illegal gold miners is estimated at 30,000 but detailed information is not available to evaluate health impacts from these activities in Uzbekistan.

Human settlements and the environment

The country's land fund has seen profound changes in terms of the distribution of land between categories. "Agricultural land" decreased from 72.76 per cent in 1990 to 45.13 per cent in 2018, along with an almost fivefold increase in "forest fund lands" – from 5.50 per cent to 24.84 per cent in the same period. The high share of "reserve lands" (24.16 per cent in 2018) indicates a large potential for designation of new PAs.

The population grew from 28.56 million in 2010 to 32.66 million in 2018. This has been accompanied by high rates of urbanization. In 2019, about 50.5 per cent of the population lives in urban areas, whereas, in 2012, 36 per cent of the population lived in urban areas.

The rapid growth of cities increased the number of people exposed to the effects of "urban" climate change. Climate adaptation planning in urban areas and rural settlements has not yet been introduced.

The majority of the housing stock dates to the Soviet period, but housing stock in Tashkent and other big cities is undergoing an injection of new construction. The new buildings commonly lack representation of the typical elements of Uzbek design.

Uzbekistan has not yet introduced a proper system of participatory urban planning and management. New architectural undertakings require the approval of the territorially-competent makhalla chairperson, but local inhabitants often complain because of the lack of information and public involvement in the decision-making process. This makes target 11.3 of the 2030 Agenda of particular importance to the country.

The implementation of urban development and construction policies in recent years has resulted in numerous cases in which the rights of inhabitants of buildings ordered for demolition were violated. Several cases are reported of people receiving an order to leave their residences to allow for new buildings to be built, without the provision of new housing or adequate compensation.

Main roads and green areas in major city centres are, in general, in good condition. However, infrastructure such as electricity, heating, and sewerage and drainage networks, in most cases, needs upgrading, maintenance or replacement.

The existing housing stock is highly energy inefficient. Construction standards changed in 2018 and introduced new energy efficiency requirements. However, they apply to new projects and are not applicable to existing buildings.

The housing sector is partially accountable for the deterioration of urban air quality. Construction sites lack specific regulations to prevent pollution due to particulate matter and dust.

Asbestos is extensively used as a construction material. The population is largely not aware of its danger for human health.

Green areas inside urban and rural settlements occupy, on average, 0.1–2 per cent of the territory of a settlement. Uzbekistan makes efforts to increase the number of trees planted in urban areas, with the ambition to also create green belts around major cities. The concept of an urban ecological network is not implemented in Uzbekistan.

Several national programmes and projects have been developed to protect and promote Uzbekistan's cultural heritage. However, the preservation of some sites suffers from the absence of management plans, inadequate restoration interventions and the construction of modern buildings.

Health and the environment

Life expectancy in Uzbekistan has increased by approximately five years since 1995. Nevertheless, it is still one of the lowest in the WHO European Region. The same holds true for maternal, neonatal and under-5 mortality rates, which have decreased in Uzbekistan but remain among the highest in the WHO European Region.

Non-communicable diseases (NCDs) continue to represent by far the major share of deaths and of years of life lost in the country. Environmental pressures, such as exposure to air pollution and noise, contribute to high levels of blood pressure and low birth weight, which are among the most important risk factors for NCDs in the country, along with poor diet, child and maternal malnutrition and tobacco use.

The incidence and prevalence of some communicable diseases, such as tuberculosis (TB) and, in particular, multidrug-resistant TB, remain a concern. TB incidence rates, which began declining steadily around 2005, remain twice as high as those in the WHO European Region. Within the country, the Republic of Karakalpakstan and Tashkent Oblast have the highest incidence of TB.

Environment-related health risks and hazards remain high. The annual mortality rate attributed to household and ambient air pollution was estimated by WHO at 81.1 cases per 100,000 population in 2016, ranking the country fifth in the WHO European Region. The burden of disease due to diarrhoea due to a lack of adequate water, sanitation and hygiene was estimated at about 14,860 disability-adjusted life years (DALYs) in 2016, ranking the country sixth in the WHO European Region.

There is no integrated information system on population health, its determinants and trends in the country. There is a huge data and information gap on health determinants and risk factors, including environmental factors. Information relevant to the health of children and other vulnerable population groups is very limited.

Climate change in Uzbekistan is bringing excessive rates of cardiovascular and respiratory morbidity and mortality and acute intestinal infections. Furthermore, a significant number of people live in areas prone to flash floods, mudflows, heatwaves, droughts and dust storms, which are becoming more frequent and intense, resulting in excessive rates of morbidity and mortality.

There are no systematic policy actions targeted to protecting people's health from climate change and to reducing life-threatening risks from natural disasters. The capacity of the health sector to assess climate change-related health status and trends as a basis for planning preventive measures and monitoring their effectiveness is insufficient.

The current surveillance system is prone to underreporting. Surveillance of infectious diseases, in particular, water- and food-borne diseases and human zoonoses, has severe limitations. Detection of pathogens in water supply and food products is rather limited.

The Aral Sea crisis has brought a large burden of disease and disability to the population, in particular in the Republic of Karakalpakstan and Khorezm Oblast. In 2017, in Khorezm Oblast, morbidity from diseases of the nervous, circulatory, digestive and urological (kidney stones) systems was higher than the national averages by about 50 per cent. According to the data for the period 2009–2017, in the Republic of Karakalpakstan, morbidity from acute intestinal infections was well over the national averages during the entire period (by an average of 60 per cent).

Successes in the past decade and priorities for the future

The top 10 environmental achievements in the period 2010–2019 include:¹

- Increasing afforestation activities to address the impacts of the Aral Sea disaster;
- Conduct of engineering works aimed at the restoration of aquatic and wetland ecosystems in the Amu Darya River delta;
- Tremendous efforts to raise the attention of the international community to the Aral Sea disaster;
- Reforms of municipal waste management;
- Investments to expand water supply and sanitation and introduce water metering;
- Launch of incentive schemes for farmers to apply water-saving techniques;
- Implementation of enterprise-specific targets to reduce energy consumption and introduction of energy-efficient measures in the residential and public sectors;
- Investments in the electrification of railways and the acquisition of new rolling stock;
- Well-developed environmental education;
- Adherence to the Sustainable Development Goals through the adoption of national goals and targets.

The top 10 environmental priorities for the next 5–10 years include:²

- Make all data and information on the environment available to the public and enable meaningful public participation in environmental matters and urban planning;
- Join global and regional MEAs to which the country is not party;
- Improve environmental assessment by reforming EIA/SEE and introducing SEA;
- Automate environmental monitoring and start monitoring PM₁₀ and PM_{2.5};
- Expand PAs and ensure the ecological connectivity and representativeness of the PA network;
- Increase efforts to address water losses in agriculture;
- Take measures to decrease the carbon and energy intensity of the economy and introduce support measures for RES, in particular, solar energy;
- Improve management of wastewater from industrial enterprises and develop sanitary landfills;
- Rehabilitate uranium legacy sites and eliminate risks from obsolete pesticides and other POPs;
- Reduce the environment- and climate change-related health risks and hazards and improve road safety.

¹ No ranking applies.

² No ranking applies.