



Europe's environment

An Assessment of Assessments
Central Asia





Central Asia

An Assessment of Assessments

Legal notice

The contents of this publication do not necessarily reflect the official opinions of the European Commission or other institutions of the European Communities. Neither the CAREC nor any person or company acting on behalf of CAREC is responsible for the use that may be made of the information contained in this report.

© All rights reserved

No part of this publication may be reproduced in any form or by any means electronic or mechanical, including photocopying, recording or by any information storage retrieval system, without the permission in writing from the copyright holder.

For reproduction rights please contact REC for Central Asia:

050043 Almaty, Republic of Kazakhstan
Orbita-1, # 40
Tel: +7 727 278 51 10

**This publication is funded
by the Ministry for the Environment,
and and Sea of Italy**

Printed by OO «OST-XXI century»

Republic of Kazakhstan, 050043, Almaty
Tel.: +7 727 390 5554

Paper

Ofset paper, 115 gr

ISBN XXX-XXXXXXXXXX-XX

© The Regional Environmental Centre for
Central Asia, 2011

Environmental production



Europe's environment

Central Asia

An Assessment of Assessments

Central Asia

An Assessment of Assessments

Legal notice

The contents of this publication do not necessarily reflect the official opinions of the European Commission or other institutions of the European Communities. Neither the CAREC nor any person or company acting on behalf of CAREC is responsible for the use that may be made of the information contained in this report.

© All rights reserved

No part of this publication may be reproduced in any form or by any means electronic or mechanical, including photocopying, recording or by any information storage retrieval system, without the permission in writing from the copyright holder.

For reproduction rights please contact REC for Central Asia:

050043 Almaty, Republic of Kazakhstan
Orbita-1, # 40
Tel: +7 727 278 51 10

**This publication is funded
by the Ministry for the Environment,
and and Sea of Italy**

Printed by OO «OST-XXI century»

Republic of Kazakhstan, 050043, Almaty
Tel.: +7 727 390 5554

Paper

Offset paper, 115 gr

ISBN XXX-XXXXXXXXXX-XX

© The Regional Environmental Centre for
Central Asia, 2011

Environmental production

Contents

Abbreviations

Acknowledgements

1 INTRODUCTION

1.1 History of the EE-AoA for Central Asia

1.2 Structure and the scope of the CA-AoA

2 WATER AND WATER-RELATED ECOSYSTEMS

2.1 Setting the scene

2.1.2 Chapter settings

2.2 BRIEF OVERVIEW OF INSTITUTIONS INVOLVED IN WATER ASSESSMENTS

2.3 OVERVIEW OF WATER ASSESSMENTS

2.3.1 Water in state of environment assessments

2.3.2 Water in thematic assessments

2.3.3 Water assessments

2.3.4 Summary profile of CA water assessments

2.4 MESSAGES

2.4.1 Coverage of freshwater issues

2.4.2 Findings of the assessment process

2.5 CONCLUSIONS

3 GREEN ECONOMY / RESOURCE EFFICIENCY

3.1 Setting the scene

3.1.1 Chapter Settings

3.2 BRIEF OVERVIEW OF INSTITUTIONS INVOLVED IN RE /GE ASSESSMENTS

3.3 OVERVIEW OF RESOURCE EFFICIENCY/GREEN ECONOMY ASSESSMENTS

3.3.1 Resource efficiency / green economy in state of the environment assessments

3.3.2 Resource efficiency / green economy in thematic and sectoral assessments

3.3.3 CA resource efficiency /green economy assessments summary profile

3.4 MESSAGES

3.4.1 Coverage of RE/GE issues in CA assessments

3.4.2 Major findings of the assessment process

3.5 CONCLUSIONS

4. RECOMMENDATIONS

4.1 Kazakhstan

4.2 Kyrgyzstan

4.3 Tajikistan

4.4 Turkmenistan

4.5 Uzbekistan

4.6 Sub-regional cooperation

Annex 2.1. List of institutions involved in water assessments

Annex 3.1. List of institutions involved in RE/GE assessments

Annex 3.2. Sub-regional, regional RE/GE assessments covering CA

List of Abbreviations

ADB	Asian Development Bank
AGBI	Astana Green Bridge Initiative
AoA	Assessment of Assessments
CA	Central Asia
CA AoA	Central Asian Assessment of Assessments
CACILM	Central Asian Countries Initiative on Land Management
CAREC	Regional Environmental Centre for Central Asia
CDM	Clean Development Mechanism
CTSD	Concept of Transition to the Sustainable Development
DPSR	Drivers – Pressure – State – Impacts – Response
EADB	Eurasian Development Bank
EC IFAS	Executive Committee of International Fund for saving the Aral Sea
EEA	European Environment Agency
EE-AoA	Eastern Europe Assessment of Assessments
EECCA	Eastern Europe, the Caucasus and Central Asia
EIA	Environmental impact assessment
ENP	European Neighborhood Policy
ENPI	European Neighborhood and Partnership Instrument
EPR	Environmental Performance Review
ER	Environmental reporting
EU	European Union
GEF	Global Environment Facility
GE/G	Green Economy/Growth
GNI	Gross National Income
Hydromet	National Hydrometeorological Service
ICWC	Interstate Commission for Water Coordination
ICSD	Interstate Commission for Sustainable Development
IFAS	International Fund for saving the Aral Sea
IFI	International Financial Institutions
IWRM	Integrated Water Resources Management
KazNIEC	Kazakhstani National Institute of Environment and Climate
KBASD	Kazakhstan’s Business Association for Sustainable Development
KOICA	Korean International Cooperation Agency
MASHAV	Israel’s Agency for International Development Cooperation
MCED-5	Fifth Asian-Pacific Ministerial Conference on Environment and Development
MCED-6	Sixth Asian-Pacific Ministerial Conference on Environment and Development
MEA	Multilateral Environmental Agreements
MECD	Ministry of Emergencies and Civil Defense
MDGs	Millennium Development Goals
NCCD	National Centre to Combat Desertification
NHS	National Hydromet Service
NGC	National Geological Service
NIEC	Scientific Research Institute of the Environment and Climate under the MoE Kz

NSA	National Statistic Agency
ODA	Official Development Aid
OECD	Organisation for Economic Co-operation and Development
OSCE	Organization for Security and Cooperation in Europe
pp	pages
Rio+20	UN Conference on Sustainable Development, 2012
SCLM	State Committee for land management
SD	Sustainable development
SEA	Strategic impact assessment
SEE	South East Europe
SEIS	Shared Environmental Information System
SIWI	Stockholm International Water Institute
SGEA	Steering Group on the European Assessment of Assessments for 7th Efe Ministerial Conference in Astana, 21-23 September, 2011
SoER	State of Environment Report
SWC	State Committee of Water Resources
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDP RBEC	United Nations Development Programme Regional Bureau for Europe and CIS
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme
UNEP RRC AP	UNEP Regional Resource Centre Asia-Pacific
UN-ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
UN SPECA	United Nations Special Programme for the Economies of Central Asia
WB	World Bank

Acknowledgements

Special thanks to the Committee of Environmental Policy of the United Nations Economic Commission for Europe (UNECE CEP), the Steering Group on European Environment Assessment of Assessments (SGEA) for decision to involve the Regional Environmental Centres of Eastern Europe, Caucasus and Central Asia (EECCA RECs) to the process of development of the European Environment's Assessment of Assessments (EE-AoA) for the Seventh «Environment for Europe» Ministerial Conference in Astana, on September 21-23, 2011 and namely to Co-Chairs of SGEA: Jacqueline McGlade (EEA), Anatoliy Dernovoy / Ruslan Bultrikov (Kazakhstan);

Special thanks to the donor-countries and donor-organizations: Italy, Switzerland and UNECE for granting CAREC in the preparation of the CA-AoA report and namely to Massimo Cozzone (Italy), Martine Rohn-Brossard (Switzerland), Mikhail G. Kokine, (UNECE/Working Group on Environmen-

tal Monitoring and Assessment Secretariat (UNECE/WGEMA)), Alexander Paperny (UNECE Secretariat) for coordinating activities under the respective grants

Special thanks to EEA Team and EEA Consultants for their valuable guidance, advices and contributions in scoping and then in development of the regional components of the EE-AoA, including the Central Asian – Assessment of Assessments (CA-AoA) and personally to Jacqueline McGlade, David Stanners, Adriana Gheorghe, Elisabetta Scialanca, Rosella Soldi, Ljubov Gornaja, Jana Tafi.

Special thanks to SGEA members, national focal points and experts from Central Asian countries for participation in special CA sub-regional consultations on CA-AoA and active contributions to the development of CA Country Fiches, uploading sources to the Virtual Library, valuable comments and recommendations in the process of CA-AoA development:

Kazakhstan	Olga Suvorova	Ministry of environmental protection of the Republic of Kazakhstan
Kyrgyzstan	Cholpon Alibakieva Natalia Baidakova	State Agency for the Environment Protection and Forestry under the Government of the Kyrgyz Republic
Tajikistan	Khursheda Musavirova Bozor Rakhmonov Anvar Kamulitdinov	State committee for Environment Protection of Tajikistan Scientific-Information Center of the Interstate Coordination Water Commission of the Central Asia (SIC ICWC)
Turkmenistan	Batyr Balliev	Ministry of nature protection of Turkmenistan
Uzbekistan	Lyudmila Aksyonova Mukhammad Mamanazarov	State committee for nature protection of the Republic of Uzbekistan

Special thanks to the Chairman and CA country representatives in Executive Committee of the International Fund for Saving Aral Sea (EC IFAS) and namely to Saghit Ibatullin (Chairman), Medet Ospanov (Kazakhstan), Kurbangeldy Ballyev (Turkmenistan), Khairullo Ibodzoda (Tajikistan).

Contributors to CA-AoA report:

Author(s): [Talaibek Makeev](#)

Contributors: [Adriana Gheorghe](#) (EEA), [Rossella Soldi](#) (Progress Consulting Srl), [Ljubov Gornaja](#) (under contract Zoi), [Elisabetta Scialanca](#) (EEA), [Henry Wyes](#) (CAREC), [Ludmilla Kiktenko](#) (CAREC), [Akmaral Mukayeva](#) (CAREC)

Data support and quality control: [Rossella Soldi](#) (Progress Consulting Srl), [Ljubov Gornaja](#) (under contract Zoi), [Jana Tafi](#) (under contract Eaudeweb)

Editing and support assistance: [Bart Ullstein](#), [Peter Saunders](#), [Alisa Bespalova](#) (CAREC), [Henry Wyes](#) (CAREC)

Translation and quality checking of Russian Version: [Alzhan Braliev](#), [Alisa Bespalova](#), [Ljubov Gornaja](#)

Report Coordination: [Adriana Gheorghe](#), [David Stanners](#) (EEA)

Contributors: [Elisabetta Scialanca](#) (EEA)

Internal Coordination Group: [Talaibek Makeyev](#), [Ludmilla Kiktenko](#), [Akmaral Mukayeva](#)



Central Asia
An Assessment of Assessments

1 Introduction



1 Introduction

1.1 History of the EE-AoA for Central Asia

As the history of the development of the European Environment Assessment of Assessments (EE-AoA) for the Seventh «Environment for Europe» Ministerial Conference in Astana, the Republic of Kazakhstan on September 21-23, 2011 is well described in Chapter I of the main EE-AoA¹. This section provides a brief history of the Central Asian countries' involvement into the process, which is different to other members of the «Environment for Europe» process.

The difference is that the countries of the European Neighbourhood Policy and the Russian Federation are beneficiaries of the European Neighbourhood Partnership Instrument's (ENPI) project on Shared Environmental Information System (SEIS) implemented by the European Environmental Agency and funded by the European Commission (DG AIDCO) under

ENPI². This project served as a source for expanding SEIS related activities, including the EE-AoA in the respective countries.

Being under a completely different EU Development Cooperation Instrument (DCI)³ within the European Union and Central Asia Strategy for a New Partnership⁴, Central Asia was not eligible to expand SEIS related activities, including EE-AoA through ENPI. Taking this into account, Co-Chairs (EEA and Kazakhstan) of the Steering Group on Environmental Assessments (SGEA)⁵ made a request to donors to provide funds to cover Central Asia by EE-AoA related activities.

In respond to this request the Governments of Italy and Switzerland have allocated funds to the Regional Environmental Centre for Central Asia (CAREC) to ensure the

1 http://aoa.ew.eea.europa.eu/europe-s-environment-an-assessment-of-assessments/europe-s-environment-an-assessment-of-assessments/files/Chapter_1_-_Setting_the_scene.pdf

2 http://aoa.ew.eea.europa.eu/europe-s-environment-an-assessment-of-assessments/europe-s-environment-an-assessment-of-assessments/files/Chapter_1_-_Setting_the_scene.pdf, Pg9.

3 http://ec.europa.eu/europeaid/how/finance/dci_en.htm

4 http://www.consilium.europa.eu/uedocs/cms_data/librairie/PDF/EU_CtrlAsia_EN-RU.pdf

5 <http://www.unece.org/env/efe/Astana/SGEA.html>

EE-AoA in Central Asia. In a view of such support the EEA has invited CAREC to upload relevant assessments to the Virtual Library⁶, to review the uploaded sources in the Review Templates⁷ and to coordinate and facilitate activities of the SGEA members and assigned national experts from Central Asian countries in their contribution to the EE-AoA.

CAREC's activities within the EE-AoA, supported by Italy and Switzerland, were crucial not only for involving Central Asia in the EE-AoA, but also played an anchoring role in the involvement of Regional Environmental Centres of Caucasus, Moldova and Russian Federation (EECCA RECs) in the development of regional components of the EE-AoA. Such decision was made by the Board of the EEA on November of 2010, and later upon the request from the EEA, the UN Economic Commission for Europe (UNECE) provided grants to all EECCA RECs for producing the EE-AoA regional components.

On December 9, 2010 the EEA held a meeting with EECCA RECs in Copenhagen to introduce the EE-AoA process and to provide necessary guidance to the EECCA RECs on its development, including working with the Country Fiches⁸, Virtual Library, Review Templates at the EE-AoA portal⁹ and the use of proposed outlines for writing regional components of the EE-AoA in two chapters: the Water and water-related ecosystems and the Resource Efficiency/Green Economy.

Today, the Virtual Library of the EE-AoA portal, where CAREC has uploaded 39 assessments on Inland Waters and 42 assessments on Resource Efficiency and Green Economy, presents a unique facility with uploaded sources on Central Asia and the

entire Pan-European region. It would be logical to continue the upload of relevant assessments to the Virtual Library after the completion of the EE-AoA for Astana 2011. This exercise may serve as the first step in sharing environmental information between the EU and the Central Asia.

The involvement of relevant national and sub-regional stakeholders in Central Asia was ensured through a series of sub-regional consultation meetings. Members of the SGEA, national experts and representatives from the Central Asian countries assigned in the Executive Committee of the International Fund for Saving Aral Sea (EC IFAS) consistently participated in the meetings. They made significant contributions to the development of the regional Central Asian component of the EE-AoA, including the development of the Country Fiches and commentary of the bodies of the two major chapters on water and water-related ecosystems and green economy/ resource efficiency, and the subsequent development of the chapter of recommendations.

CAREC reviewed 31 national, 8 sub-regional, and 12 regional UNECE-wide assessments on Inland Waters Chapter. As for the Resource Efficiency and Green Economy Chapter, CAREC reviewed 31 national, 7 sub-regional, 20 regional Pan-European and Asian-Pacific assessments covering Central Asia as well as 4 global assessments in the Review Templates.

The development of the Country Fiches and a review of the assessments in the Review Templates were the subject of regular consultations with the EEA EE-AoA team and the EEA approval. Regular consultations of the EECCA RECs with the EEA also took place during the production of chapters of the EE-AoA regional components. Strong substantive guidance from the EEA side to the EECCA RECs became a formula for the development of the EE-AoA regional components. In addition, the EEA team took editorial responsibility for the English version of the regional components of the EE-AoA.

6 <http://aoa.ew.eea.europa.eu/virtual-library-viewer>

7 <http://aoa.ew.eea.europa.eu/review-template-viewer>

8 <http://aoa.ew.eea.europa.eu/tools/country-fiches/country-fiches-consultation/eastern-europe-caucasus-and-central-asia/central-asia>

9 <http://aoa.ew.eea.europa.eu/>

The UNECE took part in all consultations of the EEA and EECCA RECs and provided guidance on the use of its grants in the development of regional components of the EE-AoA. Substantively the regional components of the EE-AoA were also subject to UNECE approval.

The structure and the scope of the regional components of the EE-AoA were reflected in annotated outlines provided by the EEA to EECCA RECs. In use of these annotated outlines CAREC developed the Central Asian sub-regional component of the EE-AoA (hereinafter the CA-AoA).

1.2 Structure and the scope of the CA-AoA

The structure of both Water and Water-related Ecosystems and Resource Efficiency/Green Economy Chapters of the CA-AoA is identical. The first subchapter of the two chapters serves as an introduction and background to the structure and substance of the chapters. It includes the setting, substantive and structural scenes and an overview of national, sub-regional, regional and global international institutions involved in relevant activities and assessments.

The second subchapters of the chapters present an overview of the reviewed assessments. The Country Fiches on Water and Water-related Ecosystems and Resource Efficiency/Green Economy were used to provide an overview of the assessments and the structure of the Country Fiches to the possible extent was observed in structuring of second subchapters of both chapters.

National state of environment reports and assessments, environmental indicator sets and statistics and respective compendiums and the existence of relevant national strategies and policies were also subject to an overview.

Environmental assessments and reports of the Central Asian sub-regional coverage and Environmental Performance Reviews

(EPRs) of the Central Asian countries prepared by the UNECE have been also overviewed in the first section of the second subchapter of the both chapters.

National reports to the global and UNECE environmental conventions have been overviewed in the second sections of the second subchapters of the chapters, which also included various thematic assessments of the national, sub-regional and regional coverage.

National reports on Millennium Development Goals (MDGs), sectoral assessments covering the considered themes at the national, sub-regional and regional levels have also been overviewed in the second section of the second subchapter of the both chapters.

The third sections of the second subchapters of the 2 chapters bear slight structural differences. In Water and Water-related Ecosystems Chapter has a section on specific water assessments.

With regard to the Resource Efficiency/Green Economy Chapter, since there are only one national and no sub-regional assessments dedicated to Resource Efficiency/Green Economy and only a few regional Asian-Pacific, Pan-European and Global assessments, there is no special section with an overview of specific Resource Efficiency/Green Economy assessments. And the third section of this subchapter provides a summary profile of the Resource Efficiency/Green Economy assessments, while it is the fourth section in the Water and Water-related Ecosystems Chapter, which gives a summary profile of Central Asian water assessments.

While introducing the second subchapters of the CA-AoA two major chapters, there is a necessity to mention special focuses placed and approaches used in their development.

One of the major focuses in the CA-AoA is made on the Official Development Aid (ODA) and its role and contribution in the development of the assessments. The

importance of ODA is highlighted through the implementation of reporting obligations of the Central Asian countries to the Multilateral Environmental Agreements, for building national institutional and expert capacities, capacities of the sub-regional organizations producing national and sub-regional assessments. The role of international development organizations in bringing ODA to Central Asia is also analyzed in CA-AoA. The assessments and their results also reflect the dependence or independence of ODA and its impact on the ownership of the Central Asian countries over the assessment processes, assessments and their results.

Working with the Virtual Library in the EE-AoA portal was an important exercise, which has a significantly improved access to the uploaded sources. In the meantime, accessibility of the assessments in Central Asia is another specific focus of the CA-AoA. This topic places a special focus on on-line access through the web-sites of relevant national authorities, open or limited access to the hard copies of assessments.

Another key focus was made on the availability, which differs in the CA-AoA from the accessibility by indicating the existence of assessments.

National, sub-regional Central Asian, then regional Pan-European and Asian-Pacific assessments covering Central Asia present geographical distinctions have made in the Water and Water-related Ecosystems Chapter for a comparative analysis of topic coverage, priority concerns and substantive focuses in the assessments.

The Resource Efficiency/Green Economy Chapter additionally reviews global assessments. It was necessary to review global considerations as the novelty of the Green Economy theme requires a comparison of national and regional visions and approaches to the global ones developed within UNEP's «Green Economy Initiative»¹⁰.

The third subchapter of the both chapters consists of a statistical analysis of the reviewed assessments. The Review Templates of 38 questions provide an opportunity for a comprehensive analysis of the assessment process, substance of the assessments and their correspondence to the topics selected by EfE stakeholders¹¹.

The Conclusion subchapters of the both chapters present conclusions made by the CAREC team during the assessment process. The final Recommendations chapter is a product of consultations with the SGEA members and assigned national experts from Central Asian countries.

¹⁰ <http://www.unep.org/greeneconomy/>

¹¹ Guide to the Europe's Environmental Assessment of Assessments EE-AoA 2011, EEa, 2010, Annex 1. p11



Central Asia
An Assessment of Assessments

2 Water and water-related ecosystems

2 Water and water-related ecosystems

2.1 Setting the scene

The forthcoming Seventh Ministerial Environment for Europe Conference in Astana, Republic of Kazakhstan on September 21-23, 2011 (Astana-2011) has Water and water-related ecosystems as one of its two key themes. This theme is of high relevance to the Central Asian (CA) region and this Central Asian Assessment of Assessments (CA-AoA) aims to reflect this.

Water and water-related ecosystems in the context of Astana-2011 are considered using a systems approach, focusing not only on current water quality and quantity, but also on past and current human interventions that have transformed the watersheds – living environments with living resources.

Water ecosystems extend beyond the borders of CA countries and the CA sub-region, linking it with China, Russia, Afghanistan, Iran and the Caucasus. Figure 2.1 shows the upstream and downstream dependence of CA countries and their links with countries outside the sub-region. The upstream or downstream location of

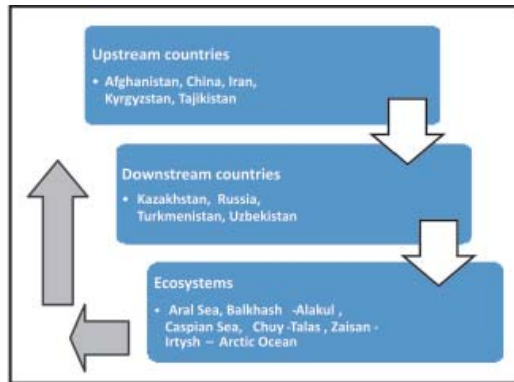


Figure 2.1. Fresh water users' dependence chain in CA and beyond

countries predetermines certain issues and concerns of freshwater availability and quality in each country, including the state of the ecosystems.

Since water-related ecosystems are built on water, the water in them can be thought of as the **footings and skeleton** of a building. Abstraction of water, depending on the quantity with drawn, can result in as low or rapid transformation of the ecosystem's

footings and skeleton and in some cases its destruction.

Depletion of the Aral Sea, due to overuse of the waters of two main water courses, the Amudaria and Syrdaria, for irrigation, specifically during the Soviet period, is an example of a devastating human impact on the ecosystem of the Aral Sea characterised by a dramatic decline of its level, desertification of its in/offshore areas and an almost complete exodus of people.

In addition to the above problems, CA countries face problems of adapting to climate change and its unpredictable extremes of weather. The unusually cold winter of 2008, when hydropower-dependent Kyrgyzstan and Tajikistan were left without electricity, demonstrated the vulnerability and weak preparedness of CA countries to solving the problems resulting from the dissolution of the Soviet Union with its associated integrated water and energy systems in Central Asia.

Due to the vital need for transboundary water cooperation in the Aral Sea basin, immediately after the dissolution of the Soviet Union CA countries were able to restart cooperation by establishing the international fund for saving the Aral Sea (IFAS) in 1993. Within the IFAS framework, CA countries negotiate and agree on water use in the Aral Sea basin year by year.

However, emerging needs to adapt to climate change and improve energy and agricultural productivity also require CA countries to strengthen cooperation in addressing water efficiency and environmental sustainability in the Aral Sea and other basins, particularly cooperation with neighboring countries such

as Afghanistan, Armenia, Azerbaijan, China, Georgia, Iran and Russia.

Pan-European cooperation, strongly supported by the EU, was instrumental for most CA countries in integrating environmental considerations into water management. National environmental authorities of CA countries, through participation in relevant Pan-European processes and UNECE conventions, have integrated various environmental management policies, environmental compendiums, indicators and state of environment reporting (SoER), and national water authorities. As a result CA countries are gradually practicing integrated water resource management (IWRM) and basin principles.

Further cooperation within the recently established EU – CA cooperation framework, involving EU institutions with relevant expertise, should ensure continuing improvement of water and environmental management in CA. The EU supports the development of a shared environmental information system (SEIS) as a platform for cooperation with countries of the EU Enlargement and Neighborhood Policy (ENP). The SEIS could also be instrumental in fostering future EU-CA cooperation.

Box 2.1

Shared environmental information system (SEIS)

Policy-makers depend on reliable and increasingly on real-time information to determine the most appropriate course of action. At the moment, European countries collect environmental data and report them to international organisations such as the European Environment Agency (EEA), the Organisation for Economic Cooperation and Development (OECD) and the United Nations Environment Programme (UNEP). Data are delivered at intervals set by relevant legislation and commitments. A SEIS is a collaborative initiative of the EC and the EEA and its member countries. It aims to improve the availability and quality of information needed to design and implement the EU's environment policy, streamline data handling by connecting existing information systems and providing online information services, modernise environmental reporting to reduce the administrative burden at national and international levels, and foster the development of information services and web-based applications. Many countries have already started connecting their local and national databases and are publishing their data online. A good example is the Ger-

man environmental portal PortalU (<http://www.portalu.de/ingrid-portal>). A number of European initiatives are also contributing to the creation of SEIS. Examples include:

the initiative to build an infrastructure for spatial information in Europe (Inspire),

the global monitoring for environment and security (GMES) initiative,

the water information system for Europe (WISE), and t

he EEA portal for sharing ozone information (OzoneWeb)

Source: EEA web-site: www.eea.eu

2.1.2 Chapter settings

Following this introductory subchapter, the Water and Water-related Ecosystems Chapter of CA-AoA contains two other subchapters and some conclusions:

Subchapter 2.3 – **Overview of water assessments** – is built on an overview of the sources included in CA country fiches on Inland Water. These have been developed in consultation with members of EE-AoA Steering and Expert Groups from CA countries. The structure of the fiches has been used for structuring the overview of water assessments.

Subchapter 2.4 – **Messages** – is an analysis of the assessments reviewed. The review templates are questionnaires comprising 38 items, giving a detailed picture of the assessment process, methodology, objectives and the key messages of the assessments. There are 31 national, 8 sub-regional and 12 UNECE assessments, whose analysis is reported in Chapter 2.4.

The **Conclusions** chapter provides messages for policy makers and stakeholders on the findings of the assessments.

Given that the EE-AoA is an ongoing assessment process, the report is built on the assessments reviewed up to 31 May, 2011.

2.2 Briff overview of institutions involved in water assessments

CA economies, depending on their resources, capacities and governance, have achieved different levels of economic development. Table 2.1 shows OECD ¹²data on the gross national income (GNI) and its per person value including official development aid (ODA) and the share of ODA in GNI in 2009.

¹² Statistics on Resource Flows to Developing Countries – © OECD 2011, pg 61.

Table 2.1 The share of official development aid in the GNI of CA countries

Country	GNI 2009 US\$ million	GNI/cap US\$	ODA US\$ million	ODA/GNI %
Kazakhstan	97260	6740	298	0.31
Kyrgyzstan	4410	870	315	7.14
Tajikistan	4912	700	409	8.32
Turkmenistan	19238	3400	40	0.21
Uzbekistan	32909	1100	190	0.58

ODA plays a significant role in environment and water related developments in CA countries and comes mainly through the UN organisation and programs (UN System) and other international agencies, not only rendering technical assistance, but also assisting in policy formulation, capacity development, fulfillment of reporting obligations under multilateral environmental agreements (MEAs) and supporting CA countries in assessing the state of water and related developments.

The higher share of ODA in Kyrgyzstan and Tajikistan largely the result of their lower GNI per person compared with other CA countries and also because of requests for ODA to solve various country development issues.

Kyrgyzstan was a recipient of ODA for funding its Country Development Strategy 2007-2010 specifically for MDGs, the reformation of its water and energy sectors

and water infrastructure through relevant WB projects, improved land management and agriculture through ADB and accessing Global Environment Facility (GEF) resources for a number of environmental projects mainly implemented by UNDP and UNEP.

Tajikistan was a recipient of ODA for poverty reduction – the National Development Strategy which integrated the MDGs, was developed with active involvement of the donor community and then for infrastructural projects funded by ADB. The WB has supplied funds for the water sector, land management and agriculture, while GEF resources, through UNEP, UNDP and ADB, were intensively used for environmental and enabling projects.

Table 2.2 shows the institutions in charge of the assessment activities and production of CA national assessments, including CA Country Fiches on Inland Waters.

Table 2.2: Overview of institutions involved in national water assessments in CA

Type of assessment	Institution	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
1	2	3	4	5	6	7
National reports on environment	Ministry of Environment	x	x	x	x	x
	Other national bodies	KazNIEC*				
	UNEP RRC AP	x	x	x	x	x
Set of environmental indicators	Ministry of Environment	x	x	x		x
	UNECE	x	x	x	x	x
	UNEP	x	x	x	x	x
	UNDP					x
Environmental Compendium	Ministry of Environment	x				x
	UNECE	x	x	x	x	x
	UNEP	x	x	x	x	x
	UNDP					x

* MoE KZ is an abbreviated title. List of institutions involved in assessments is in Annex 2.1

1	2	3	4	5	6	7
Environmental Statistic	Statistics agency	x	x	x	x	x
EPR	UNECE	x	x	x		x
Water resources assessments	Ministries	MoA, MoE	MoE			
	Other national bodies	NHS				NHS
	UNDP		x		x	x
Water resources inventories (cadastre)	Ministries			MoW		MoA, MoW
	Other national bodies	SWC, NHS, NGC				NHS, NGC
Fresh Waters' quality assessments	Ministries	MoE				
	Other national bodies	NIEC, NHS				NHS
Basin assessments	Other national bodies	NHS				NHS
UNFCCC 2nd National communication	Ministry of Environment	x	x	x	x	
	Other national bodies	NIEC				NHS
	UNDP		x	x	x	x
UNCCD national reports	Ministries	MoE				
	Other national bodies	NIEC	NCCD	SCLM	NCCD	NHS
	UNCCD		x	x	x	x
MDG-7 Assessments	Government	x	x	MoE	x	x
	UNDP	x	x	x	x	x
Johannesburg Plan of Implementation report (IWRM)	UNEP	x	x	x	x	x
Water quality standards and norms	UNECE	x	x	x		x
	EC	x	x	x		x
	CAREC	x	x	x		x

Some countries, such as Kazakhstan within its nationally-funded programmes, carry out most of their regular assessments of the environment and water under the obligations of relevant MEAs or as part of their own national development activities; other

CA countries rely on development assistance for carrying out similar assessments.

In Uzbekistan, there is national funding as well as national programmes for running the water cadastre and water quantity and quality monitoring. Water assessments and national environmental reports are done

either nationally using ODA funding or within UNDP and other projects. In addition, Uzbekistan uses ODA for reporting under UNFCCC, UNCBD, UNCCD and other UN conventions.

Kyrgyzstan, Tajikistan and Turkmenistan produce assessments only through the use of ODA and, in most cases, commission assessments to the UN System, and other international and sub-regional organisations. These three countries also benefit from their eligibility to access ODA for their reporting obligations under MEAs.

There are some similarities and some differences between countries regarding the status and structural composition of the national institutions involved in relevant assessments, the distribution of relevant authorities and responsibilities and also in the regularity of the assessment processes and their priorities.

National environmental authorities in CA countries have different statuses: ministries in Kazakhstan and Turkmenistan, state committees in Tajikistan and Uzbekistan and a state agency in Kyrgyzstan. In spite of these differences, they all have responsibility for environmental management, including the quality of water and the state of water ecosystems.

Water authorities in CA also have a variety of statuses, ministries with joint mandates for agriculture and water resources in Turkmenistan and Uzbekistan, and a joint mandate for land management and water resources in Tajikistan, the state committee with mandate for water resources and irrigation in Kyrgyzstan, and the state committee under the Ministry of Agriculture with mandate over water resources and irrigation in Kazakhstan. All have overall authority over water resources, irrigation and related facilities, and reclamation of irrigated lands, and some over the water supply to rural populations, which is the responsibility of local authorities in some countries.

Water quantity and quality monitoring are under the hydro meteorological agencies

(Hydromets) in CA. They also have different statuses: under the Ministry of Environment Protection in Kazakhstan, under the Ministry of Emergencies and Civil Defense (MECD) in Kyrgyzstan and under separate institutions under the governments in Tajikistan, Turkmenistan and Uzbekistan.

Health ministries also have authority over the sanitary control of fresh waters. Energy authorities in Kyrgyzstan and Tajikistan have responsibility for hydropower plants and participate in the regulation of water discharge. Water safety, flood risks and management are under the emergency and civil defense authorities.

At the country level in CA the UN System plays a crucial role in supporting national authorities and institutions in the field of environment and water management. UNDP and UNEP support the CA countries in various assessments, including national reports to various MEA secretariats. MDG-related developments in CA countries and relevant reporting are carried out through multi-donor efforts, also with a leading role of the UN system at the country level.

The Regional Environmental Centre for Central Asia (CAREC), in partnership with the EC and UNECE, has developed five national reports on water quality standards and norms.

In addition to national assessments, there are sub-regional activities and relevant assessments. These do not have the same regular base as the national assessments in some CA countries, but overview the state of sub-regional ecosystems, focusing on transboundary water-resource management. International organisations such as ADB, SIWI, UNECE, UNEP, UNDP and USAID have been in charge of the development of these assessments.

The EADB produces and supports the production of assessments, including those assessed in this Central Asian Assessment of Assessment (CA AoA) such as *Water and energy resources in Central Asia: utilization and development issues*, 2010, and provided

funds for publishing *The Impact of Climate Change on Water Resources in Central Asia, 2009* developed by the Executive Committee of IFAS.

The IFAS, with its institutions such as the Executive Committee of IFAS (EC IFAS),

the Interstate Commission for Water Coordination (ICWC) and the Interstate Commission for Sustainable Development (ICSD), has been involved in the commissioning or development of several sub-regional assessments.

Box 2.2.

Institutional structure of the International Fund for saving the Aral Sea (IFAS)

IFAS was established in 1993 by the decision of presidents of the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan and the Republic of Uzbekistan for generating facilities and funding joint activities, programmes and projects for saving the Aral Sea and environmental rehabilitation of the Sub-Aral region and the Aral Sea basin, taking into account the interests of all five countries. For implementation, IFAS was institutionalised and structured into:

- **The Executive Committee of the International Fund for Saving the Aral Sea (EC IFAS)** with headquarters in Almaty since 2009. EC IFAS is a policy and programme coordination body and currently coordinates the development of the Third Programme on Saving the Aral Sea. The EC IFAS has also been in charge of the development of the CA assessment: *The impact of climate change on water resources in Central Asia, 2009*;
- **The Interstate Commission for Water Coordination (ICWC)** annually establishes the water quantity quota for each of the participating countries within the main water courses (Amu Daria and SyrDaria). The working bodies of ICWC are the Secretariat, with its office in Hudjant in Tajikistan, and the Scientific and Research Centre in Tashkent, Uzbekistan, which has been involved in the development of a number of sub-regional water resource assessments such as the «Diagnostic report on water resources in Central Asia, 2009»;
- **The Interstate Commission for Sustainable Development (ICSD)** coordinates sub-regional cooperation in the field of the environment and sustainable development. The working bodies of ICSD are the Scientific Research Centre and the Secretariat in Ashgabat. ICSD has commissioned a number of assessments and has also been involved in the development of some of these such as the «Sub-regional Integrated Environment Assessment: Central Asia - natural conditions, socio-economic development, environmental policy, integrated assessment of the priority environmental problems», 2007.

The CA countries, as part of Pan-European regional processes, benefit from participation in various cooperation processes, where the EEA, UNECE, UNEP and OSCE play a significant role in assisting EECCA, including CA countries, with the integration of progressive environmental and water management tools, including state of environment reporting, development of

environmental and water indicators, and compendiums; these are then used by CA countries in defining their own indicator sets and the associated reporting.

CA countries, as part of the Asia-Pacific regional cooperation process, benefit from the activities of the UN-ESCAP and the UNEP Regional Office for Asia-Pacific with its Regional Resource Centre (UNEP RRC

AP) in CA, which supports environmental and water activities in CA through the ICSD IFAS. The UNEP RRC AP was in charge of the development of *Environmental indicators for Central Asia* (2004), *Appraisal reports on priority ecological problems in*

Central Asia: Water Resources Pollution, Waste Management, Degradation of Mountain Ecosystems, Land (UNEP, 2006), and *Sub-regional Integrated Environment Assessment: Central Asia* (2007).

Table 2.3. Sub-regional CA and regional UNECE-wide assessments covering CA

Nº	Title of the assessment	Institution	Geographical coverage	Year published
1	2	3	4	5
Sub-regional assessments				
1	Water and energy resources in Central Asia: utilisation and development issues	EADB	CA	2010
2	Regional water intelligence report Central Asia	SIWI	CA	2010
3	Central Asia: Atlas of natural resources	ADB	CA	2010
4	The impact of climate change on water resources in Central Asia	EADB	CA	2009
5	Land degradation in Central Asia	ADB	CA	2008
6	Dam safety in Central Asia: capacity building and regional cooperation	UNECE	CA	2007
7	Environment and security – transforming risks into cooperation: the case of the Eastern Caspian Region	UNEP	Kazakhstan, Turkmenistan	2008
8	Changing glaciers and hydrology in Asia addressing vulnerabilities to glacier melting	USAID	CA	2010
9	Appraisal reports on priority ecological problems in Central Asia	ISDC IFAS	CA	2006
10	Sub-regional Integrated Environment Assessment: Central Asia	UNEP RRC AP	CA	2007
Regional assessments				
1	Review of implementation of the Espoo Convention. The 1991 Convention on environmental impact assessment in a transboundary Context			2008
2	Guidebook on promoting good governance in public private partnerships			2008

1	2	3	4	5
3	The Millennium Development Goals. The way ahead. A Pan-European perspective	UNECE	Europe, EECCA, Balkans, Russia	2006
4	Effects of air pollution on rivers and lakes	UNECE	Europe, EECCA, Balkans, Russia	2010
5	Transboundary flood risk management. Experiences from the UNECE region	UNECE	Europe, EECCA, Balkans, Russia	2009
6	Regional report on the status of implementation of the Protocol on water and health to the Convention on the protection and use of transboundary water courses and international lakes	UNECE	Europe, EECCA, Balkans, Russia	2010
7	Review of the implementation of OSCE commitments in the economic and environmental dimension. ENVIRONMENT	UNECE	Europe, EECCA, Balkans, Russia	2007
8	Our waters: joining hands across borders - first assessment of transboundary rivers, lakes and groundwater	UNECE	Europe, EECCA, Balkans, Russia	2007
9	River basin commissions and other institutions for transboundary water cooperation capacity for water cooperation in EECCA	UNECE	EECCA	2009
10	Transboundary water cooperation: trends in the newly independent states	UNECE	EECCA, Russia	2006
11	Report on national policy dialogues and vision for the future developments of the dialogues	UNECE	EECCA, Russia	2010

2.3 Overview of water assessments

This chapter presents an overview of references provided in the CA country fiches on inland waters. Most of these references are available through the EE-AoA portal in the Virtual Library <http://aoa.ew.eea.europa.e/virtual-library-viewer>. Table 2.4

provides an overview of these references by country, specifying the regularity of publication and the accessibility of the assessments. The regularity predefines the scope and outcomes of the assessments. For instance, annual reports for Kazakhstan trace year-by-year progress of relevant performance and year-by-year changes in the state of the environment through intense use of monitoring data. Periodic (Uzbekistan) or single published reports (Kyr-

gyzstan, Tajikistan, Turkmenistan) focus descriptively on a multi-year overview of the state of the environment and its problems, with less comparative analysis, and some include overall descriptive recom-

mendations of the steps toward improvement of the situation. All sub-regional and regional assessments in Table 2.3 are accessible through respective web-sites and are therefore not included in Table 2.4.

Table 2.4: Regularity and accessibility of latest national water assessments in CA

Assessment	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
National reports on environment	regular-annual	singular, 2009	singular, 2007	singular, 2008	periodic
Set of environmental indicators	national	national	national	no data	national
	MDG-7	MDG-7	MDG-7	MDG-7	MDG-7
	EECCA	EECCA	EECCA	EECCA	EECCA
Environmental Compendium					
Environmental Statistic	regular-annual	regular-annual	regular-annual	regular-annual	regular-annual
EPR	2008	2009	2004	no report	2010
Water resources assessment	national-singular	national	national	national	national
	project based	project based	project based	project based	project based
Water resources inventories (cadastre)	regular	no data	no data	no data	regular
Freshwater quality assessments	regular, data type,	no data	no data	no data	regular, data type,
Basin assessments	regular for 4 basins,	no data	no data	no data	no data
UNFCCC 2 nd National communication	2009	2009	2008	2010	2008
UNCCD national reports	2006	2006	2006	2006	2006
MDG-7 Assessments	2010	2009	2010 A	2003	2006
Johannesburg Plan of Implementation report (IWRM)		2006	2006	2006	2006
Water quality standards and norms	2009	2009	2009	2009	2009

■ Online access – green; limited access (hard copies) – yellow; not-accessible – red.

Below is an analysis of water as a component of state of environment reports together with water as part of environmental compendiums, indicator sets and statistics (2.3.1), water in thematic reports (2.3.2) and water in specific water resource assessments (2.3.3). Section 2.4 presents key messages and summaries of the overview of water assessments.

2.3.1 Water in state of environment assessments

All CA countries except Uzbekistan, as parties to the Aarhus Convention, have obliga-

tions to produce periodic national reports on the environment, which include water resource chapters with focus on water quality and the state of water ecosystems.

Kazakhstan produces regular annual environmental reports in fulfillment of its obligations under the Aarhus Convention and allocates national funding for that. Reports have been published annually for the period 2006-2009.

Kazakhstan, in the context of the national programme on monitoring the state of the environment, produces regular quarterly, half-yearly and annual information bul-

Box 2.3

State of the environment reports in the Republic of Kazakhstan

SoERs in Kazakhstan have been developed annually for the period 2006-2009. These are prepared regularly by the Kazakh Scientific Research Institute for Ecology and Climate of the Ministry of Environmental Protection of the Republic of Kazakhstan.

The objective is to assess and analyse the impact on the environment of natural resource utilisation and economic activities and to implement measures aimed at reducing their pressure. The state of water resources is discussed in 15 of the 253 pages (6 per cent).

The assessments were prepared on the basis of Guiding principles on preparation of national environmental reports (on state and protection of nature) prepared by the UNECE Working Group on Environmental Monitoring and Assessment and confirmed during the Fifth Ministerial Conference, Environment for Europe (Kiev, 2003), approved by the UNECE Committee on Environmental Policy (May, 2007) and the Sixth Ministerial Conference 'Environment for Europe' (Belgrade, 2007), including Joint Meetings on environmental indicators in St Petersburg, Kishinev, Donetsk and Geneva.

The report collected, systematised and analysed data on the state of the environment of Kazakhstan received from ministries, governmental and other institutions. The process used the environmental indicators recommended by UN ECE for EECCA, as well as data from the registry of environmental problems of Kazakhstan.

The major concerns of the assessments were: air quality in urban areas and industrial centres, condition of water resources, condition of land and soil, industrial and domestic waste, and state regulation of nature utilisation and environmental protection in Kazakhstan.

Source: <http://www.eco.gov.kz/ekolog/doklad.php>

letins for Kazakhstan and separately for eight territories, including the Balkhash Lake basin, the Aral Sea basin, the Caspian Sea basin and the Nura River basin, with specific focus on the environment and the quality of fresh and drinking waters. These bulletins are published and accessible online through the KazHydromet web-site, but only in Russian.

Kyrgyzstan developed an SoER-type national environmental outlook with the support of UNEP RRC AP in 2009, and UNDP published *Environment and natural resources for sustainable development in Kyrgyzstan* in 2007. Since 2005 Kyrgyzstan has also produced regular annual online updates of the national state of environment report, first published in 2003.

In 2008 Tajikistan published an Information bulletin on the state of the environment with the support of OSCE. In 2009 Turkmenistan published a national environ-

mental outlook with the support of UNEP RRC AP.

Uzbekistan, within the time-frame considered, published a national state of the environment report in 2008, and in 2010 published *Monitoring and assessment of nature environment and Environmental Profile of Uzbekistan 2008*, with the financial support of UNDP.

Table 2.5 summarises the overall coverage of water issues in SoE assessments, with more detailed analysis of water resources and water resource management topics given in Chapter 2.4 Table 2.5 shows generally low coverage of water issues in SoE assessments, most coverage being of water availability in the SoE assessment for Tajikistan (5 per cent of a 40 page document). Of all water-related topics, the highest coverage in all the national SoE assessments is for water availability.

Table 2.5. Overview of inland waters in SoE assessments

	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan	Sub-region
1	2	3	4	5	6	7
Number of assessments	4 – SoER 5-indicator set* 2-env. compendium 3- env. statistics** 2-EPR	2 – SoER 2-indicator set* 1-env. compendium 3- env. statistics** 2-EPR	1 – SoER 2-indicator set* 1-env. compendium 3- env. statistics** 1-EPR	1 – SoER No data -indicator set No data-env. compendium 2-env. statistics**	2 – SoER 4-indicator set* 2-env. compendium 4-env. statistics** 2-EPR	1 – SoER 2-indicator set (EE-CCA)* 2-env. compendium (EECCA)
Water issues coverage in SoERs						
Water quantity						
– Availability	X (14 pp – 1.5%)	X (1 pp – 0.6%)	X (2 pp – 5%)	X (4 pp – 3%)	X (9.5 pp – 2.5%)	X (0.7 pp – 0.4%)
– Water demand	X (5.5 pp – 0.6%)	X (2.5 pp – 1.4%)	X (0.5 pp – 1.3%)	X (1.5 pp – 1%)	X (3.5 pp – 0.9%)	X (1 pp – 0.6%)
– Impact		X (0.2 pp – 0.1%)	X (1 pp – 2.5%)		X (1 pp – 0.3%)	

1	2	3	4	5	6	7
Water quality						
– Nutrients	X (12 pp – 1.3%)	X (0.2 pp – 0.1%)	X (0.2 pp – 0.5%)	X (1 pp – 0.7%)	X (3.2 pp – 0.8%)	X (0.2 pp – 0.1%)
– Hazardous subs.	X (3.5 pp – 0.4%)	X (0.2 pp – 0.1%)	X (0.2 pp – 0.5%)	X (1 pp – 0.7%)	X (3.6 pp – 0.9%)	X (0.2 pp – 0.1%)
– Waste water	X (11 pp – 1.2%)	X (0.1 pp – 0.05%)	X (0.3 pp – 0.7%)	X (0.1 pp – 0.07%)	X (0.5 pp – 0.1%)	X (1 pp – 0.6%)
– Waste water treatment	X (2.5 pp – 0.2%)	X (0.1 pp – 0.05%)	X (0.2 pp – 0.5 %)	X (1.7 pp – 1.2 %)	X (0.7 pp – 0.2%)	X (1 pp – 0.6%)
Drinking water	X (4.5 pp – 0.5%)	X (0.3 pp – 0.2%)	X (0.1 pp – 0.3%)		X (1.1 pp – 0.3%)	X (1.5 pp – 1%)

– indicator set:

Kazakhstan – 1. Concept of transition of Kazakhstan to Sustainable Development for 2007-2024, 2006; 2. Sectoral programme «Zhasyl damu for 2010-2014», from September 10, 2010, № 924; 3. Strategic plan of Ministry of environmental protection of the Republic of Kazakhstan for 2011 – 2015; 4. The rules for determining indicators of quality of the environment; 5. Millennium Development Goals in Kazakhstan Report, 2010

Kyrgyzstan – 1. Concept of transition of Kyrgyz Republic to Sustainable Development for 2009-2035, 2009; 2. The second periodic progress report on the Millennium development goals in the Kyrgyz Republic, 2009

Tajikistan – 1. Concept of transition of the Republic of Tajikistan to Sustainable Development, 2007; 2. Millennium Development Goals Tajikistan Progress Report, 2010

Uzbekistan – 1. Environmental Profile of Uzbekistan (based on indicators), 2008; 2. Environmental indicators for Uzbekistan, 2007; 3. Guidelines on use of environmental indicators, 2005; 4. First National Millennium Development Goals Report for Uzbekistan, 2006

Sub-region – 1. Environmental Indicators for Countries of Eastern Europe, the Caucasus and Central Asia; 2. Trial compendium of environmental indicators, prepared by UNEP, 2007

** – environmental statistics:

Kazakhstan – 1. Statistical compendium 'Environmental protection and sustainable development of Kazakhstan'; 2. Brochure 'Kazakhstan in figures'; 3. Statistical bulletins (Series 16 'Environmental protection')

Kyrgyzstan – 1. Statistical compendium 'Kyrgyzstan'; 2. Kyrgyzstan in figures 2005-2009; 3. Statistical yearbook of Kyrgyz Republic 2005-2009

Tajikistan – 1. Statistical yearbook of Tajikistan, 2010; 2. Tajikistan in figures, 2010; 3. Environmental protection in Tajikistan, 2010

Turkmenistan – 1. Statistical yearbook of Turkmenistan: 2000—2009; 2. Statistical compendium 'Environment and natural resources use in Turkmenistan for 2009'

Uzbekistan – 1. Quarterly statistical publication 'Statistical Review of Uzbekistan'; 2. 'Statistical Review of Uzbekistan for 2007'; 3. Annual statistical bulletin 'Uzbekistan in Figures'; 4. Statistical yearbook

Among little covered water-quality topics the most covered are nutrients (1.3 per cent in Kazakhstan's SoE assessments). Wastewaters are more covered in Kazakhstan's SoE assessments (1.2 per cent).

In 2006 Kazakhstan accepted the concept of transition to sustainable development (CTSD) by 2024, using set of sustainable development indicators as an index of environmental sustainability. These indicators have integrated the MDGs for Kazakhstan, including MDG-7. Progress in implementing CTSD, based on these indicators, has been regularly reflected in annual national environmental reports for the period 2006-2009 and in the statistical yearbook *Environment and Sustainable Development of Kazakhstan* for the period 2009-2010.

In 2009 Kyrgyzstan, using the experience of Kazakhstan, developed a CTSD for 2009-2035 with several environmental indicators, but, as yet, the government has not adopted the CTSD. MDG-7 indicators are currently the only eligible target indicators in Kyrgyzstan.

In 2007 the Government of Tajikistan accepted CTSD by 2030, developed with the assistance of UNEP. The CTSD does not, however, consider water as a priority, but covers it through cross-cutting considerations such as adaptation to climate change, reduction of natural disasters, biodiversity conservation and obligations under various MEAs. It is a descriptive document and does not contain clear target indicators. National MDG-7 indicators, *Environmental indicators for Tajikistan* (2009), recommended by UNECE, are to be considered as an applicable set of environment and water indicators for Tajikistan.

Uzbekistan, using UNECE's *Environmental Indicators for Countries of Eastern Europe, the Caucasus and Central Asia* (2006) has developed a national core set of environmental indicators, including 25 water indicators, and published *Environmental indicators for Uzbekistan* in 2007. The Environmental Profile of Uzbekistan (2008) was also based on these indicators, which were also used in the *Environmental Atlas of Uzbekistan* (2008).

Box 2.4

Environmental Profile of Uzbekistan (based on indicators), 2008

This assessment was prepared by the State Committee for Nature Protection in cooperation with UNDP in Uzbekistan.

Objective: assessment of the state of the environment by the national environmental indicators in Uzbekistan for 1996-2006. State of water resources are assessed in nine pages out of 88 (10 per cent).

Taking the dependence of the state of the environment on the state of water resources into account, the national core set of environmental indicators includes 25 concerned with water of which the following are used in the assessment: total integral water abstraction (surface and underground water); total water consumption (including all types of user separately); freshwater resources (surface and underground water); water consumption by utility; total volume of water resources in water reservoirs; proportion of reused water (excluding agriculture); quality of drinking water (proportion of samples non-compliant with standards); discharge of industrial hazardous substances; water pollution index classification (WPI); household drinking water consumption per capita.

UNECE and EEA criteria are used for selecting the indicators for EECCA countries (Environmental indicators and indicator-based assessment reports: Eastern Europe, The Caucasus and Central Asia, UNECE, New York and Geneva, 2007; Europe's environment – the fourth assessment, EEA, Copenhagen, 2007).

Source: <http://www.undp.uz/en/publications/publication.php?id=169>

The national statistics agencies (NSA) of CA countries provide environmental statistics on water. The statistics agency of Kazakhstan produces annual statistics yearbooks, *Environment and Sustainable Development of Kazakhstan*, with a wide range of environmental and sustainable development data with well presented information on water resources and water quality, water use by sectors, access to safe drinking water and sanitation with the dynamic of achieving MDG-7, environmental performance statistics with capital investments in water treatment and sanitation, environmental protection costs, and data on current quality of waters compared with the required norms and health standards. Due to their comprehensiveness and compatibility with the key indicators reflected in Kazakhstan's CTSD to 2024, these yearbooks are relevant sources of information on progress in the field of the environment and water resources, with easy online access.

The NSA of Kyrgyzstan publishes accessible data online reporting year-by-year progress on MDG targets, including MDG-7. It also publishes statistics on progress towards the country's development strategy on the funding of environmental activity and increases in the volume of treated waters, neither of which provide significant information for assessing the state and progress of the environment and water resources. The NSA also provides online access to several water-related environmental statistics brought together in the table titled Protection and rational use of water resources. These statistics are also included in the statistical yearbooks published annually, which are accessible online.

Data from the statistics agencies of Turkmenistan and Uzbekistan are not available online, however there are references to them in the statistical yearbook *Environmental protection and use of nature resources in Turkmenistan* for 2009 and the annual statistical bulletin *Key indicators of nature protection and rational use of natural resources*

in the Republic of Uzbekistan. Environmental Protection (2010) – a publication of Tajikistan's statistics agency is also not available online.

Kazakhstan, Kyrgyzstan and Uzbekistan, in the considered period, have been involved in UNECE's 2nd Environmental Performance Review (EPR) reports, which include water resources. Turkmenistan was all in the 1st EPR process, which is to be completed in 2011. There was also a 1st EPR process in Tajikistan but it is not assessed here as it was for 2004 and therefore outside the scope of this assessment. A focus on performance makes EPR an integrated type of report, reviewing not only the state of the environment, including water resources, but also progress in a country's environmental performance. The second EPR reports contain a separate chapter on the sustainable management of water resources. For Kazakhstan, among the economic instruments for environment protection, the second EPR considers charges for urban water supply and wastewater discharge; for Kyrgyzstan it has no other water-specific chapters; for Uzbekistan it includes transboundary water issues within consideration of the implementation of international agreements and commitments' and there is also a section on reclamation of irrigated land. At least 10 per cent of all the 2nd EPRs for CA countries are devoted to coverage of water issues.

There are several sub-regional state of the environment reports, such as the *Sub-regional integrated environment assessment: Central Asia* (2007) that describes the state of the environment and natural resources, socio-economic development, environmental policy, integrated assessment of priority environmental problems such as pollution of water resources, degradation of land and mountain ecosystems, air pollution and waste management. Both this, and the indicator-based *Appraisal reports on priority ecological problems in Central Asia: Water Resources Pollution* (2006) were produced in

cooperation with UNEP RRC AP with the ICSD IFAS.

2.3.2 Water in thematic assessments

MDG progress reports are periodically produced by CA countries in support of UN agencies operating at the country level; the latest are for 2009–2010. These are an integrated type of report with an overview of progress on quantitative indicators and reflect the status of CA countries in achieving the target of halving the proportion of people without sustainable access to safe drinking-water and basic sanitation by 2015 (MDG-7). The MDG reports and indicators are the most accessible data on progress on environmental and water issues for all CA countries.

UNECE's *The Millennium Development Goals. The Way Ahead. A Pan-European Perspective* (2008) presents an overview of progress towards the MDGs in the UNECE region and the role of UNECE in that process. It contains comparative data, statistics and indicators, including MDG-7, for the whole UNECE region and is considered as complementary to the national CA MDG reports.

Water resources are well reflected in relevant scenario setting and adaptation chapters of the 2nd National Communication to UNFCCC, which was submitted to the convention's secretariat by all five countries within the considered period. The national reports of all CA countries to UNCCD, covering water resources and water management through to the impact of water shortages and its unsustainable use on desertification, also represent valid thematic water-related assessments. These two types of report are obligations of CA countries under the respective UN conventions.

Central Asia: ATLAS of Natural Resources (2010), which contains a chapter on water resources (pp 68–87), is an output of the ADB-led Central Asian Countries Initiative on Land Management (CACILM). This assessment gives a comprehensive overview of development capacity and opportuni-

ties in the use of natural resources in CA, including water resources.

Land degradation in Central Asia (2008) is another sub-regional report on CA by ADB in the framework of CACILM with asset of land degradation indicators, developed in cooperation with several institutions such as FAO and Global Mechanism (GM). Irrigated lands are considered as the most degraded in CA in this assessment and makes it relevant to CA AoA.

Dam Safety in Central Asia: Capacity Building and Regional Cooperation (2007) is another sub-regional thematic report developed by UNECE as a contribution to the United Nations Special Programme for the Economies of Central Asia (UN SPECA) for CA. It covers the state, needs for cooperation, institutional arrangements and legal framework for strengthening dam safety cooperation among CA countries.

Environment and security: transforming risks to the cooperation (2008) is a comprehensive assessment of risk areas of development in the Eastern Caspian region, including Kazakhstan and Turkmenistan. It stresses the freshwater shortage problem as one of the main risks in the region.

2.3.3 Water assessments

Water cadastres and inventories exist in all countries of CA, but limits on financial and human resources mean that they are periodically updated only in Kazakhstan and Uzbekistan. There are no data on the status of water cadastres in Kyrgyzstan, Tajikistan and Turkmenistan. Water cadastres in CA countries have limited access or are not accessible openly at all.

Comprehensive water-resource assessment in Kazakhstan was done through the publication of the *Master Scheme of the comprehensive use and protection of water resources in Kazakhstan* (2010) which assesses the state and capacity of water resources for various uses in each of the river basins of Kazakhstan, irrigation systems and networks. There are no such data in the national

water-resource assessment publications of other CA countries for the assessed period.

UNDP's *Assessment of the water sector in Turkmenistan* (2010) is a structured overview of the water sector, providing information on the state of water resources, the institutional structure and legislation of the water sector and the role of water cooperation in CA.

UNDP's *Water – a critical resource for Uzbekistan's future* (2007) reports on the state of water resources and water sector report, which, also focuses on sub-regional aspects of water problems in CA, highlighting the role of sub-regional cooperation and the extent to which the sub-regional agreements and national legislations of CA countries are compatible with the MEAs concerned with water.

National brief reports on integrated water resources management and efficiency for Kyrgyzstan, Tajikistan and Uzbekistan have been developed in 2006 within the framework of UNEP support to developing countries in reporting achievements toward the Johannesburg Plan of Implementation.

A review of national water quality standards and norms has been developed for all CA countries by CAREC and UNECE. This focuses on the state of relevant legislation, responsible institutions and monitoring capacities.

In Kazakhstan regular statistics on water resources, including discharge, abstraction, use in sectors of the economy and quality, are included in the annual statistical publication *Environment and Sustainable Development of Kazakhstan*, which is available online. The KazHydromet website provides online information only in the information bulletins already discussed in section 2.3.1. Separate water discharge and quality data can be purchased from KazHydromet as hard copy.

For Kyrgyzstan, online availability of annual publications containing water statistics has already been mentioned. KyrgyzHydromet provides the annual data on water

quality of the transboundary Chui River Basin on line only. Other publications such as a Hydrological Yearbook and monthly and annual Balance of Water Reservoirs are not accessible openly and freely.

Tajikistan and Turkmenistan's water resource statistics are included in statistical yearbooks that are neither available nor available openly in print. Hydromets' data on water quantity and quality in these two countries are also not openly and freely available.

Water resource statistics in Uzbekistan are included in such publications as the quarterly *Statistical review of Uzbekistan; the Statistical review of Uzbekistan for 2007; the annual statistical bulletin, Uzbekistan in figures; and the Statistical Yearbook*. These are only available by written request to the State Statistics Committee. UzHydromet provides online data on daily water discharge only for main water courses, their major tributaries and major irrigation channels. Other data, including on water quality, are not openly accessible.

With respect to water-specific indicators, MDG-7 for all CA countries sets target indicators on access to safe drinking water and sanitation. These are mostly acknowledged and regularly tracked in CA countries. Other available water-specific indicators are included in the indicator set mentioned in section 2.3.1.

Our waters: joining hands across borders - first assessment of transboundary rivers, lakes and groundwater, published in 2007 by the UNECE Water Convention, provides a summary of the quantity and quality of selected transboundary rivers and aquifers in CA on the basis of relevant indicators. It provides data and information from two convention members: on water quality of transboundary watercourses in Kazakhstan and on water quantity in transboundary watercourses in Uzbekistan.

There are sub-regional CA, UNECE and EECCA-wide water-specific assessments covering CA as shown in Table 2.3 in section 2.2. These are multiple descriptions of major

problems and concerns such as water shortages, losses, quality, need for cooperation, integration of new management approaches and tools. These assessments have been reviewed in relevant templates and were the source for analyses of inland water assessments in Chapter 2.4 of CA-AoA.

CA country fiches on inland water include web portals and sites, giving a picture of the state of water resources, their management issues, and activities and efforts aimed at solving them. The Index Mundi (<http://www.indexmundi.com>) provides data- and statistics-based country profiles of the world, including water. The Environmental Performance Index, containing indicators for drinking water, freshwater quality and several others (<http://epi.yale.edu>) classifies 192 countries of the world on their environmental performance, including CA countries. ICWC's web portal (<http://www.cawater-info.net>) is specific to CA water resources with uploaded legal acts and treaties of CA countries and IFAS on water and IFAS publications. The UNDP RBC water website (<http://waterwiki.net>) provides a review of the water sector in the CA sub-region and CA countries. The UNECE website (www.unece.org) is a source for all UNECE publications on water and the environment. As a result of the AoA process, the virtual library of the EEA website (<http://www.eea.eu>) is probably the largest library of water and green economy assessments for the Pan-European region. The CA-AoA process, with follow-up uploading of all relevant assessments to the CAREC website (<http://www.carecnet.org>) will provide a guide to all the assessments covered or referred to in CA-AoA that are accessible online. The FAO website (<http://www.fao.org/countries/55528/en>) gives agricultural profiles of the countries of the world, including the fishery sector, which is relevant to this assessment.

2.3.4 Summary profile of CA water assessments

Whether the relationship of CA governments to water issues is proactive or reactive, their commitment and the particular steps they are taking to address problems can be seen through the involvement in water assessments of national institutions, the UN System and other international institutions and the number of national, sub-regional and regional UNECE and EECCA-wide assessments that have been carried out.

Funding from national budgets or ODA, the ability of CA countries to use their own institutional and technical capacities and expertise to carry out water assessments or the extent to which they seek help from international organisations may be indicative of the extent to which CA countries accept ownership of water problems and their capacity and commitment to solve them.

Various national water assessments are available in CA, complemented by sub-regional and regional UNECE and EECCA wide assessments.

Water quantity and availability concerns are the subject of most of the assessments, including the state of outdated irrigation facilities and the need to improve them and reclaim irrigated lands. Reports on the possible effects of climate change on water quantity and availability, relevant economic sectors, households and people are also available. Water quantity and availability monitoring data and statistics, as well as the set of national or regional indicators, serve as the basis for analysis in several assessments. However, limited access to the national water statistics and data in some CA countries (Tajikistan, Turkmenistan and Uzbekistan) make it difficult to operate with up-to-date data, and the latest data available are often outdated.

Water quality is a most problematic topic in terms of available data in CA. Data on the quality of surface waters in terms of maximum permissible concentrations

(MPC) of pollutants are available in Uzbekistan. Water quality data and descriptive reports are available in Kazakhstan. Other CA countries have no recent data available nor statistics on water quality that are openly accessible online. Assessment of water-quality standards and norms, reviewing institutional and legal settings and gaps have only been done once within the assessed period.

There is as yet no regular *water resource and water management* reporting in CA countries. Only regular SoERs contain relevant water resource chapters. River basin reports with focus on the environment and water quality, produced in Kazakhstan, are essentially state of environment reports rather than water resource and water sector reports. And the existing SoERs in CA, other than for Kazakhstan, only contain very brief water chapters with limited information about water-management performance and with brief focus on water quality, sanitation and access to drinking water, this information being usually sourced from MDG progress assessments.

Second EPRs for Kazakhstan, Kyrgyzstan and Uzbekistan provide the greatest coverage of water-resource management among SoE-type of assessments in CA. Other SoE assessments might better describe water resources and management, and those that are specifically on water quality and water treatment are usually the immediate responsibility of ministries of the environment in CA countries.

Water sector profiles are presented by a number of assessments in CA and several online resources such as UNDP's *Central Asia – regional and national water sector review* (http://waterwiki.net/index.php/Central_Asia_%E2%80%93_Regional_and_National_Water_Sector_Review).

Several reports review the progress of CA countries in achieving the targets and obligations of various MEAs. MDG progress reports, including for MDG-7, are well elaborated and continuously track assess-

ments of water and sanitation access in all CA countries.

There are limited assessments of water sector performance in CA water assessments, merely repetitious compilations of the problematic state of water issues. UNECE EECCA-wide assessments help to fill several gaps and highlight the policy, legal and transboundary aspects of water management in CA that need to be addressed.

In terms of size, apart from one comprehensive water resource and water sector assessment in Kazakhstan of almost 500 pages, water assessments in CA and CA countries are a maximum of 60-80 pages, including data and statistical tables, which indicates the prevalence of relatively brief freshwater assessments.

Geographically most of the assessments focus on the Aral Sea basin both in its national and sub-regional aspects, however other water ecosystems are increasingly being covered in the assessed period, especially by Kazakhstan due to the country containing territories other than the Aral Sea Basin and increased attention to growing problems in other water ecosystems and water courses (Chui-Talas, Ili-Balkhash, Irtysh).

2.4 Messages

This chapter reports the analysis of the reviewed CA water assessments. It has been carried out on a national, sub-regional and regional basis, covering some 50 assessments of water and water-related ecosystems in CA – 31 national, 8 sub-regional and 11 regional. In appropriate cases comparison between these three geographical dimensions has been used to assess priority focus, gaps, the assessment process and its compatibility with other assessments and EE-AoA requirements.

2.4.1 Coverage of freshwater issues

The review template requires a detailed topic analysis in each of the assessments. The analysis refers to water resources and

water-resource management sub-themes and topics (Table 2.6.) as presented in the *Guide to the Europe's environmental assess-*

ment of assessments (EE-AoA) 2011 (EEA, 2010, Technical Annex, p 37).

Table 2.6. Topics covered by the assessed assessments

Water resource topics	Water-resource management topics
Water quantity and vulnerability (including extreme natural events)	Water quantity (including glaciers and extreme events)
Desertification	Water management (including efficiency and adaptation measures)
Living resources (fisheries)	Infrastructure (including financial aspects, energy, wastewater, desalination, pipes/channels/reservoirs)
Habitat characterisation	Water consumption
Ecosystems and biodiversity Protected and migratory species and protected areas	Governance (including transboundary issues)
Invasive species	Ecosystem services and restoration
Water-borne diseases	Water pollution control
Water quality and vulnerability	Socio-economic aspects (e.g. access to drinking water) Vulnerability

Table 2.6 shows the water-resource topics, which were analysed under ten headings: **policy, legal, drivers, pressure, state, impact, response, trends, hot spots and transboundary**. The drivers – pressure – state – impacts – response (DPSIR) is a framework for organising information about the state of the environment¹³ and relevance to the DPSIR framework was a key for the analysis made. Five other non-DPSIR framework analyses were also selected for all-round analysis of proposed topics.

Figure 2.2 shows the percentage coverage of water resource topics in national, sub-regional and UNECE regional assessments. Analysis of Figure 2.2 shows that **water quantity and vulnerability and water quality and vulnerability** are the topics most covered. Less covered ones, such as

protected and migratory species and protected areas, invasive species and **water-borne diseases** along with **living resources (fisheries)**, might be of such low coverage for several reasons:

- the selection of mostly water quantity and quality-oriented assessments with less focus on water biodiversity and water and health assessments;
- over-viewing and reviewing of water resource chapters in SoERs and not those on water and biodiversity, water and health;
- rare or no availability of water and biodiversity, water and health assessments for CA;
- weak focus and/or absence of indicators on the impact of water scarcity and poor water quality on water ecosystems, including indigenous, cultivated and invasive biodiversity and relevant activities;

¹³ Guide to the Europe's Environmental Assessment of Assessments EE-AoA 2011, EEa, 2010, Annex 1. p11

- consideration of the above topics not as separate topics in separate chapters, but as part of other chapters in the assessments;
- these topics are considered as a problem, but are not a priority for national and ODA-driven activities in CA.

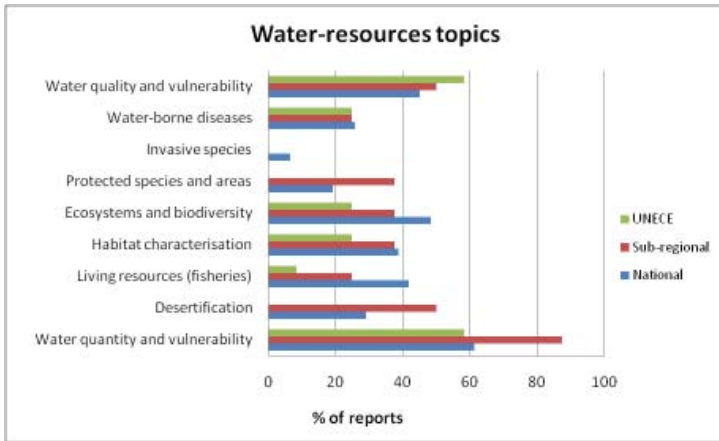
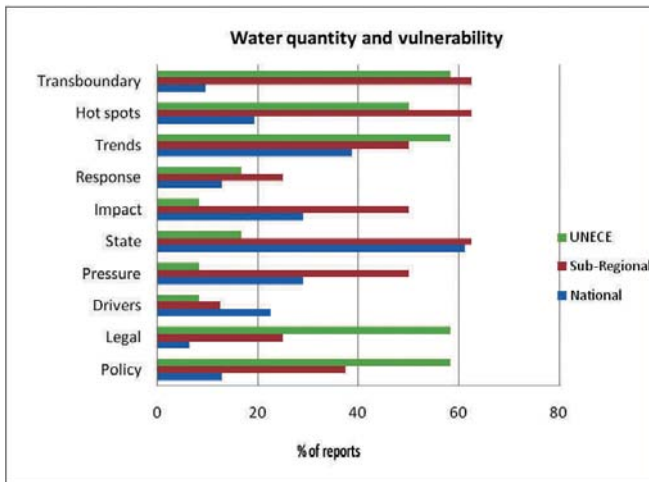


Figure 2.1. Coverage of water-resource topics in assessments

Source: EE-AoA portal, Review Template section 2

- An obvious cause of low coverage in Figure 2.1 is the absence of topics such as **protected and migratory species and protected areas, invasive species** along and **desertification** and low coverage of **living resources (fisheries)** in UNECE assessments. Better coverage of **ecosystems and biodiversity** provides an opportunity, although still limited, to analyse the topic, which is directly related to water and water-related ecosystems.



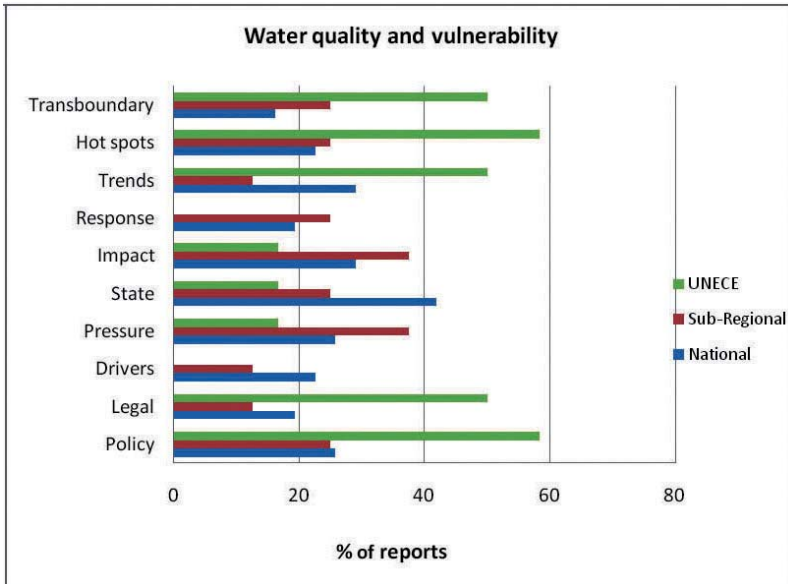


Figure 2.2. Water quantity and quality coverage in assessments

Source: EE-AoA portal, Review Template section 2

Figure 2.2 shows that water quantity and quality, together with vulnerability, are the most covered topics under the 10 headings. There is an obvious stronger focus in the CA national and sub-regional reports reviewed on water quantity and vulnerability with less focus on water quality and vulnerability, while UNECE assessments prioritise both topics with more focus on water quality and vulnerability. This might be interpreted as a prevalence of water quality focus in ODA-driven regional and sub-regional assessments, while CA national assessments give high priority to water quantity and show a strong concern for the consequences of scarce water on agriculture and economies as well as to the ecosystem of the Aral Sea.

National and sub-regional assessments addressing water quantity have a stronger focus on some DPSIR analyses such as **state**, then **pressure** and **impact**, with a lesser focus on **drivers** and **responses** related to addressing water management problems in CA. With regard to water quality, sub-

regional assessments focus more on impact and pressure than state, while UNECE regional reports include impact, state and pressure analyses, but totally lack response and drivers.

UNECE assessments focus mainly on policy and legal analyses and also cover transboundary, hot spots and trends analyses, the latter also being well covered by sub-regional assessments, specifically for water quantity and vulnerability, while national reports give low priority to these analyses for both topics.

In general, the lack of drivers-driving economic sectors, infrastructure, settlements and households – logically implies allows ability to make an adequate response.

Good coverage of several water-resource management topics in the assessments is noted with a few exceptions, for example water-pollution control in national assessments. This may reflect either management efforts and performance on particular

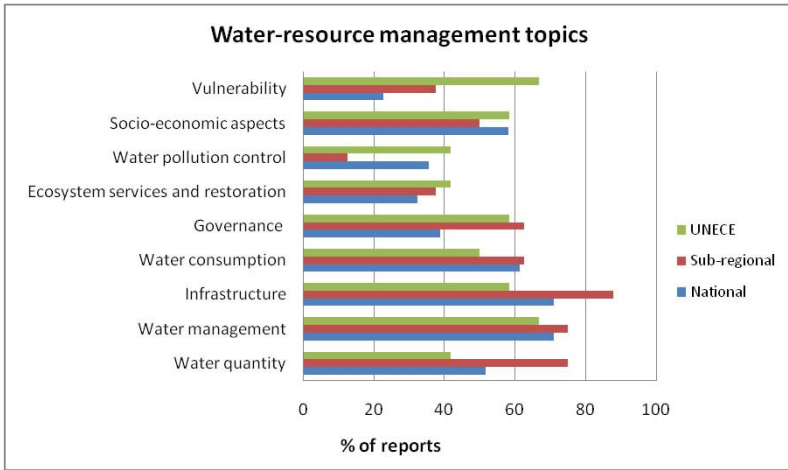


Figure 2.3. Coverage of water-resource management topics in assessments

Source: EE-AoA portal, Review Template section 2

topics, or assessed needs in addressing relevant gaps and problems.

Water management, including efficiency and adaptation measures; infrastructure, including financial aspects, energy, wastewater, desalinization, pipes/channels/reservoirs; water consumption and governance, including transboundary issues, are the most addressed topics in the assessments. Water pollution control, ecosystem services and restoration are less addressed.

There are certain differences between national, sub-regional and UNECE assessments. UNECE assessments, while evenly covering most of the topics, have a stronger focus on vulnerability, while CA national and sub-regional assessments focus more on water quantity, management, infrastructure and consumption and only weakly cover vulnerability, water pollution, ecosystem services and restoration.

Low overall coverage of water-pollution control, ecosystem services and restoration occurs, primarily, because of their very low coverage in national and sub-regional assessments. Relatively average coverage of these topics in UNECE assessments is not able to pull them up to a higher level. Note,

however, that there only 11 UNECE assessments among many others that have been reviewed for the purpose of CA-AoA.

Figure 2.4 shows coverage of ecosystem services and restoration together with socio-economic aspects, not of high coverage overall, but of high importance in terms of the theme of the Astana conference and in terms of practical social-economic vitality.

A low level of consideration of ecosystem services and restoration is provided, with less consistent coverage in national and sub-regional assessments, but somewhat better coverage in UNECE assessments. It should be noted that the ecosystem approach and related activities, including restoration, in the CA sub-region and countries, do not yet receive as much attention as water resources. Without consistency in assessments, it will be difficult for CA countries to make progress with water-ecosystem management and approaches such as payment for ecosystem services (PES), a tool for the internalisation of environmental costs. There should, therefore, be a better focus of national and ODA activities on this area.

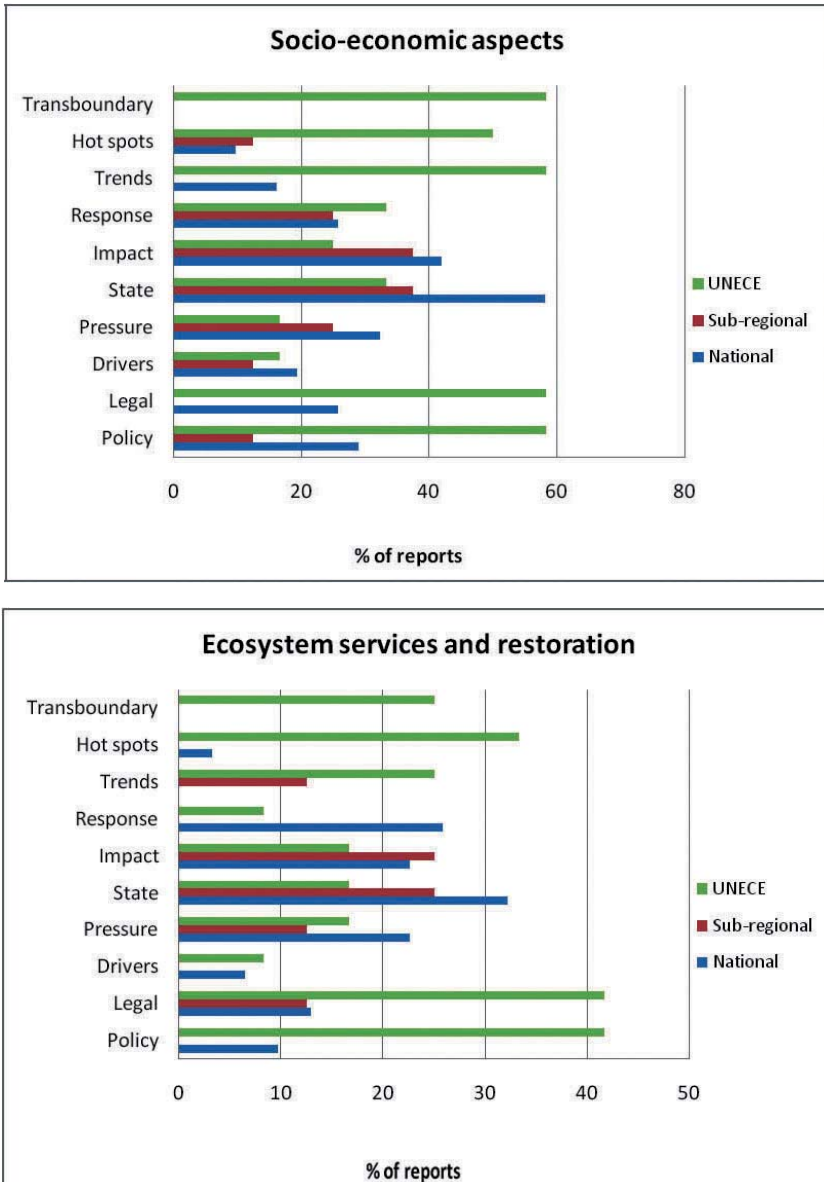


Figure 2.4. Types of analyses related to ecosystem services and restoration and socio-economic aspects as water-resource management topics

Source: EE-AoA portal, Review Template section 2

Socio-economic aspects, including drinking water, receive relatively little coverage in UNECE assessments. National assessments in this topic observe the DPSIR framework, but in the same sequence that other topics cover the DPSIR. Absence of transboundary consideration of socio-economic aspects in national and sub-regional assessments is a matter of some concern. It might preclude transboundary activities and interactions, which would require economic cooperation. CA sub-regional assessments give very low priority to socio-economic aspects and do

not focus on analyses of legal instruments, which may be because of the absence of water-related economic cooperation and subsequently assessments at the sub-regional level.

2.4.2 Findings of the assessment process

The review templates include a series of questions on the assessments and related processes. Section 2.4.1 was about the thematic coverage of assessments, this section relates to the assessment process itself.

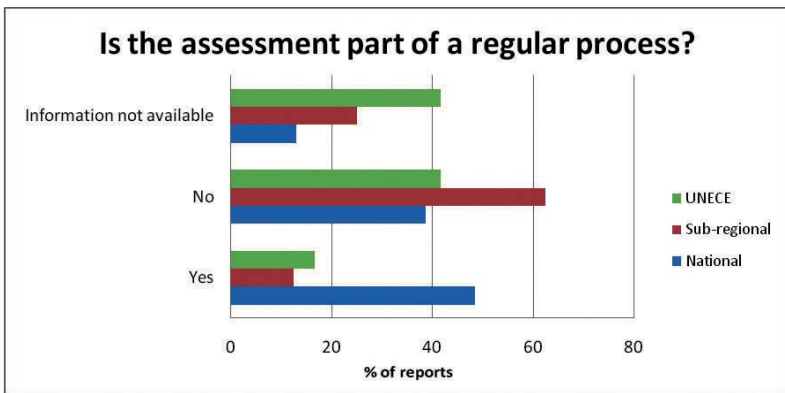


Figure 2.5. Regularity of the assessment process in CA

Source: EE-AoA portal, Review Template section 2

The regularity of the assessment process is important for understanding the sustainability of water-related activities in CA. Forty-eight per cent of CA national reports, 12 per cent of sub-regional and 18 per cent of UNECE assessments are produced as part of a regular process. This means that there is a high proportion of ODA depend project-based non-regular assessments in CA. In addition, CA countries commission part of regular reporting to the UN System under MEAs, which, unlike nationally funded reporting, require a high contribution from ODA.

Almost all assessments are available in pdf. format, some national and sub-regional assessments also in HTML, 70 per cent of national and 40 per cent of sub-regional

assessments are also available in print. Some of the assessments and sources included in CA country fiches on inland water resources have limited access or are not openly accessible. This applies mainly to environmental statistics and data in Hydromets in CA countries.

Awareness of and publicity about assessments and their findings are clearly important. Radio, TV and other media are used only for advertising the national assessments, newsletters only for national and sub-regional assessments, press-releases partially for national, sub-regional and UNECE assessments and conferences, and seminars are used for all assessments to advertise and disseminate the results.

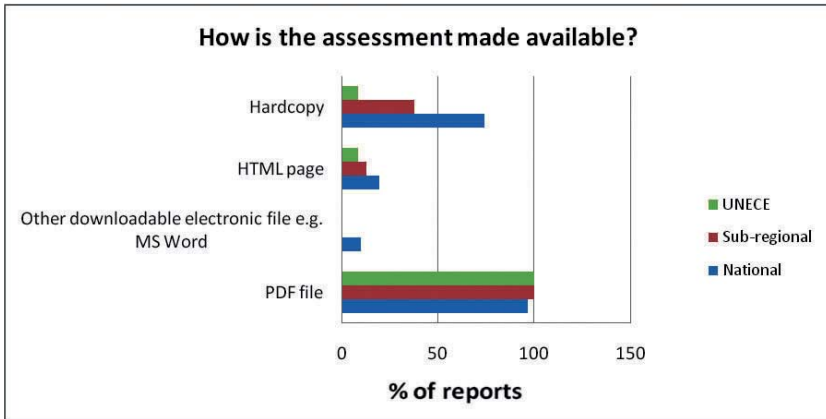


Figure 2.6. Availability of water assessments in CA

Source: EE-AoA portal, Review Template section 2

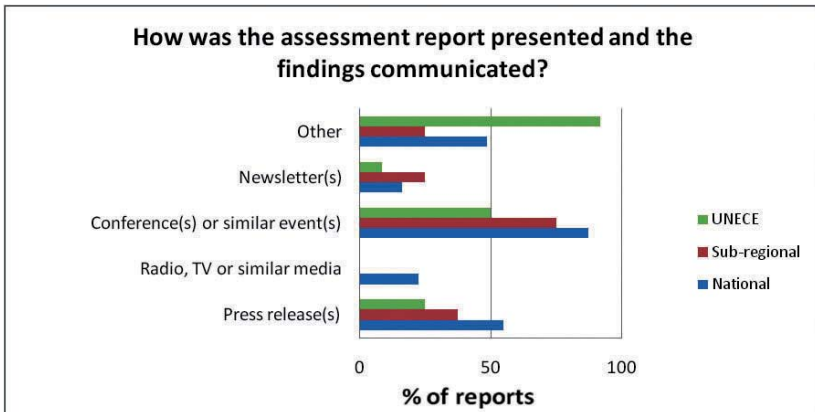


Figure 2.7. Communication of water-assessment findings

Source: EE-AoA portal, Review Template section 2

In terms of type of assessment, CA is mostly covered by status and trends (process) and more than 60 per cent were thematic assessments, more than 40 per cent impact assessments while 60 per cent of UNECE assessments are project-based. Only around 20 per cent of assessments are response-based.

Assessments are the results of multi-party involvement in 90 per cent of national and sub-regional cases and only 50 per cent of the UNECE ones. This may result from the capacity needs for the development of

assessments and reflect the multi-sectoral nature of national assessments, with water being only one of the many other topics considered or touched on only as a result of discussion of other related areas. It may also reflect the dependence of national and sub-regional assessments on ODA, for which multiparty involvement is a requirement.

Concerning the impact of the assessment process on the building of institutional, scientific and technical capacity review templates show that 70 per cent of UNECE assessments in their development process

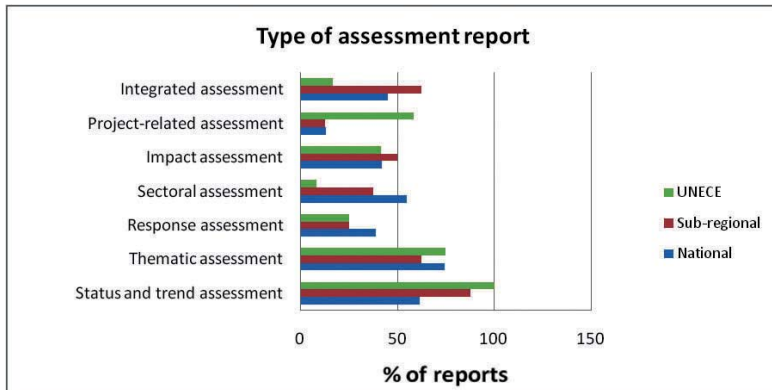


Figure 2.8. Type of water-assessment reports

Source: EE-AoA portal, Review Template section 2

have built such capacity but only 30-40 per cent of national and sub-regional assessments have done so.

In terms of the information used for the assessments, most interestingly about 35 per cent of the national and sub-regional assessments and 85 per cent of the UNECE assessments are built on local knowledge. However almost 100 per cent of all assessments use expert opinion and data as the basis for information. This may mean that most of the knowledge needed for water-resource assessments is imported to CA from the European part of UNECE region, where this knowledge originates.

Eighty per cent of national and sub-regional assessments use statistical publications as the source of data, and 80 per cent of the national assessments use regular data flows, while others use these significantly less. The *ad-hoc* collection of data is the main source for UNECE assessments (90 per cent) and in more than 50 per cent of cases the sub-regional and UNECE assessments use project-based initiatives. *Ad-hoc* data collection is also highly used for national and sub-regional assessments (60 per cent). The high use of statistical publications and regular data flows in national assessments, with other assessments making significantly less use of such sources, might raise the issue of access to that type of data

and questions about the applicability of such data for these assessments.

Analysis of the review templates shows that the indicators used in assessments are based on regular data and information flows in 50 per cent of cases and on standard/agreed methodologies in 60 per cent. All indicators used relate to the past 10-20 years, with very few examples of future target and performance indicators with the exception of Kazakhstan which uses several in its SoE assessments.

There are many questions left unanswered in the review templates, specially regarding information flows, methodologies used, links to other assessment processes and the legal basis for assessments, mostly in national and sub-regional assessments reviewed by CAREC. This might mean that there is a need for clearer reflection of these aspects in future assessments.

2.5 Conclusions

There clearly is an assessment process for water and water-related ecosystems in CA through regional Pan-European and Asian-Pacific, CA sub-regional and national initiatives and activities.

The national assessment processes depend to a very high degree on ODA and

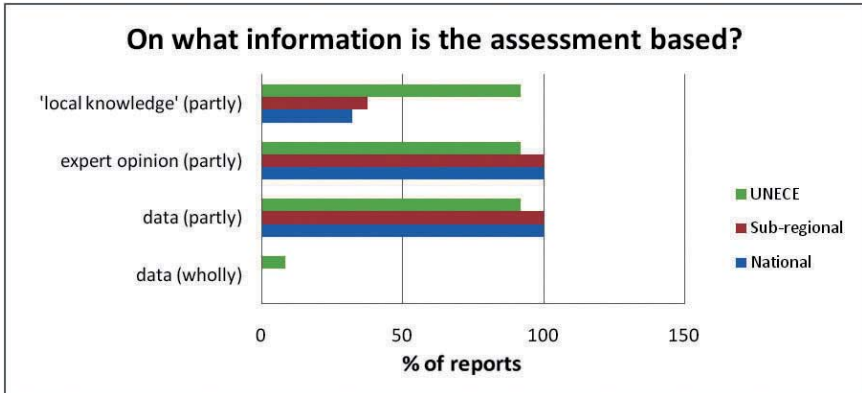


Figure 2.9. Information base for water assessments

Source: EE-AoA portal, Review Template section 2

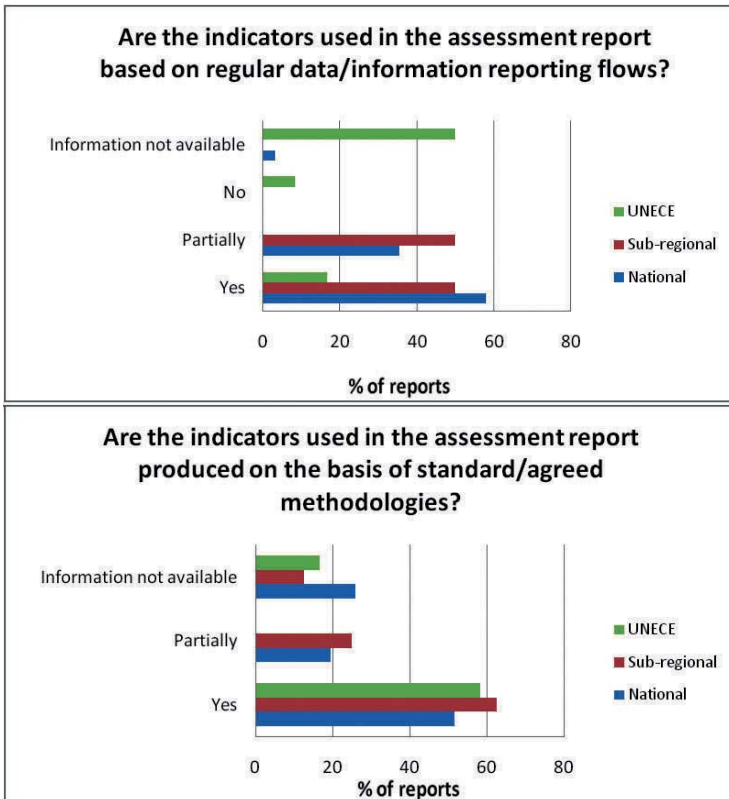


Figure 2.10. Use of indicators in water assessments (%)

Source: EE-AoA portal, Review Template section 2

its agents – UN and other international development agencies. CA sub-regional and UNECE regional assessments covering CA are fully ODA-dependant. Among CA countries, only Kazakhstan provides national funding for regular SoE assessments. Such ODA dependence may affect ownership of the process and its sustainability.

There is, as yet, no regular annual or periodic reporting and assessments specific to water resources in CA countries. The-matically, water resources are covered by national reports to several MEAs, including global environmental UN and UNECE conventions and MDG progress reports.

Access to the assessments is important in terms of fulfillment of the obligation of CA countries, except Uzbekistan, under the UNECE Aarhus Convention on ensuring access to environmental information. Since all the assessments reviewed are uploaded to the EE-AoA virtual library, the EE-AoA process is making a significant contribution to improving access to the sources of information.

Existing SoE assessments vary from country to country, both in terms of quantity and quality. The variety of reporting obligations under MEAs may enrich SoE assessments and contribute to their periodic regularity. In the meantime SoE assessments cannot be based on the compilation of thematic reports. Use of environmental indicators and monitoring of their achievements is an important part of SoE assessments.

Some CA sub-regional and national assessments use indicators, mainly developed within the framework of the Johannesburg Plan of Implementation by UN organisations, EEA and OECD. There is a need for further elaboration and adaptation of indicators and relevant statistical compendiums because of existing gaps and development trends. There is also a need to develop clear and measurable sets of indicators for decision-makers, including indicators.

Existing CTSD and SD strategies only cover water issues weakly and are not a priority on national development agendas because of other priority development strategies

and concepts which exist in parallel and do not encompass the ideas of these concepts.

Ecosystem services and related topics are only poorly covered in CA sub-regional and national assessments and this weakens decision-making and practices in CA. There is also a need to increase the focus in CA national assessments on other poorly covered areas such as water-pollution control and vulnerability in order to provide the necessary basis for relevant decisions and activities.

CA national assessments observe the DPSIR framework, but focus more on state, pressures and impacts than on drivers and responses. This means that CA countries are not addressing the causes of water problems and consequently have few response solutions. Assessments of sectors of the economy are needed to address the weak coverage of drivers and responses in the DPSIR framework.

There are almost no national and sub-regional integrated water assessments in CA. Even if assessments cover social and economic issues along with environmental ones, they are not linked and are done as a series of sectoral descriptions collected in one publication. MDG reports also use the sectoral approach when considering and analysing progress in achieving MDGs. There is therefore a need in CA to commission development and adaptation of the methodology of integrated assessments.

The review of assessments has shown that there are gaps in regularity, methodological unity and compatibility with the requirements of the EE-AoA review templates, communication of the assessments, and ensuring access to them and their outcomes. Most of assessments are descriptive, essentially compilations and provide no clear guidance for decision making. There is therefore a need to address these gaps by:

- building capacities of responsible national institutions for the establishment of compatible assessment process, unified procedures and systems, those based on

approved, compatible and accessible data and information;

- unification and increased compatibility of assessments in two dimensions:
 - within the CA sub-region for interfacing and scoping them through transboundary cooperation;
 - within the EU-CA cooperation framework for necessary information and data sharing;
- development of compatible information and data collection systems is needed, also in the two above dimensions; in this context SEIS could be the basis for future EU-CA cooperation, as well as resulting in improved data accessibility;
- ensuring a system for regular water-resource assessments and further strengthening and cross-sectoralisation of SoERs;
- building the expert capacity in national institutions in order to request only ODA funding, but not expertise through ODA.



Central Asia
An Assessment of Assessments

3 Green economy / Resource Efficiency

3 Green economy / Resource Efficiency

3.1 Setting the scene

The concept, strategies and processes of Sustainable Development (SD) are being reviewed in preparation for the 20th Anniversary of the United Nations Conference on Environment and Development (UNCED) in Rio in 1992 and the forthcoming UN Conference on Sustainable Development in Rio in 2012 (Rio+20). It is becoming evident that environmental sustainability, if compared with social and economic development, is not being sufficiently addressed, particularly by emerging

context of sustainable development and poverty eradication; and the institutional framework for sustainable development¹⁴.

Both the green economy and green growth aim to integrate economic development with social inclusivity and environmental sustainability, thus providing further direction to the concept of SD. National green economy and green growth concepts have only been developed in a limited number of states, however they are increasingly being discussed at global and regional levels.

As a result of the membership of CA countries in UNESCAP, which promotes green growth in Asia and the Pacific, and in

Box 3.1

Green Economy and Green Growth definitions

Green Economy

UNEP defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy is low carbon, resource efficient, and socially-inclusive. In a green economy growth in income and employment should be driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.

In addition, the main indicators of economic performance, such as growth in Gross Domestic Product (GDP), need to be adjusted to account for pollution, resource depletion, declining ecosystem services, and the distributional consequences to the poor of loss of natural capital.

Source: *Toward a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, UNEP, 2011, www.unep.org/greeneconomy, pg 16.

economies. The Rio+20 Conference will focus on two themes: *green economy in the*

¹⁴ <http://www.uncsd2012.org/rio20/index.php?menu=61>

Green Growth

Green growth was adopted at the 2005 Ministerial Conference on Environment and Development in Asia and the Pacific (MCED) as a key strategy for achieving sustainable development and Millennium Development Goals 1 (poverty reduction) and 7 (environmental sustainability). Green growth can be defined as economic progress that fosters environmentally sustainable, low-carbon and socially inclusive development. Pursuing green growth involves outlining a path to economic growth and well-being while using fewer resources and generating fewer emissions in meeting demands for food production, transport, construction and housing, and energy.

Policies and investments that promote green growth seek to improve the eco-efficiency of growth, which involves minimising resource use and negative environmental impacts per unit of benefit generated by the economy. Green growth is a pre-requisite for building a green economy.

Source: Preview: Green Growth, Resources and Resilience Environmental sustainability in Asia and the Pacific, UNESCAP, 2010, www.unescap.org/esd/environment/flag-pubs/GGRAP_Box_1.3, pg 10.

UNECE, and since **greening of economies** is one of two themes of the Seventh Efe Ministerial Conference to be held on September 21-23, 2011 in Astana (Astana 2011), there is an overlap in CA of the green growth concept with the Pan-European greening of economies theme to be discussed in Astana 2011.

Astana has already been the host City for the Sixth Asian-Pacific Ministerial Conference on Environment and Development (MCED-6), held by UNESCAP on September 27 - October 1, 2010. The Government of Kazakhstan, having hosted two major Asian-Pacific and Pan-European regional environmental events, then initiated the **Astana Green Bridge Initiative (AGBI)**¹⁵, which aims to promote Asian-Pacific and Pan-European inter-regional cooperation in green economy/growth.

In spite of the overlap already mentioned and various opportunities at the national level, CA countries have not yet accepted green economy/growth concepts or strategies. Moreover, while in some CA countries existing national SD concepts and strategies are currently being reconsidered in

the light of other development priorities, in others such concepts and strategies are absent, have not yet been approved or are mainly socially oriented without taking into consideration issues such as natural resource efficiency and environmental sustainability.

In 2006 Kazakhstan made a strong commitment to SD by accepting the national Concept of Transition to SD (CTSD) by 2024, which was cross-sectoral in coverage and inter-sectoral in its governance, and established the National Council on Sustainable Development, chaired by Prime Minister. The CTSD was integrated into the programme for 2010-2014 of the Ministry of Environment Protection entitled Zhasyl Damu¹⁶ (Kazakh for green development).

In 2009 Kyrgyzstan, following the experience of Kazakhstan, developed a CTSD for 2009-2035, which has not yet been approved. Beyond the Country Development Strategy for 2007-2010, Kyrgyzstan has not yet adopted any further national development strategies.

Tajikistan, in its CTSD for 2007-2030, developed with the support of UNEP, refers to

¹⁵ http://www.unescap.org/esd/mced6/documents/Documents/MCED6_13E.pdf

¹⁶ <http://www.eco.gov.kz/strategiya/zhasyl.php>

MDG-7, to the National Poverty Reduction Strategy and the National Development Strategy for 2007-2015, which integrates MDGs of Tajikistan by 2015. It focuses on adaptation to climate change, reduction of natural disasters, biodiversity conservation and obligations under Multilateral Environmental Agreements (MEA), which are the responsibility of the State Committee on Environment Protection. It is a descriptive strategy with limited measurable targets and indicators.

Uzbekistan already formulated its National Sustainable Development Strategy in 1997. It comprises economic and social development and ecological principles with no measurable goals and targets.

There is as yet no adopted National Sustainable Development Strategy (NSDS) for Turkmenistan, however the concept of NSDS exists and was developed in cooperation with the UNEP Regional Resource Centre for the Asia-Pacific (UNEP RRC AP) in 2005-2007.

The Astana-2011 conference, by discussing **greening the economies** might assist CA countries to upgrade and re-scope their national SD strategies, policies and also to adapt and integrate their respective definitions.

With respect to the **greening the economies** theme, the EE-AoA Steering Group has proposed (Table 3.1) two sub-themes and respective topics¹⁷, which were used in the CA-AoA as a framework for assessing relevant CA national and sub-regional, UNECE-wide and Asia-Pacific regional assessments and finding out the state, policy relevance, gaps and needs for greening of CA economies.

CA countries are familiar with some of the RE/GE topics presented in Table 1 in the context of climate-change mitigation (energy efficiency and saving, Clean Development Mechanism), waste management, wastewater treatment, and green farming

projects, and through membership of UN-ECE Conventions.

3.1.1 Chapter Settings

The RE/GE chapter of the CA-AoA is based on data and information included in the Country Fiches and assessments reviewed by May 31, 2011 and, following this introductory subchapter, contains:

Subchapter 3.3 – **Overview of Resource Efficiency/Green Economy assessments**, based on an overview of the sources included in the RE/GE Country Fiches¹⁸. The structure follows that of the country fiches, which are the reference source for the exact titles and on-line addresses of the sources. There is therefore no repeated referencing in the text below if the sources are the subject of the overview.

Subchapter 3.4 – **Messages**, an analysis of the 31 national, 7 sub-regional and 20 regional assessments reviewed.

Subchapter 3.5 – **Conclusions**, key findings and messages to policy-makers and stakeholders.

3.2 Brief overview of institutions involved in RE / GE assessments

Since green economy/growth concepts have only emerged recently, support by Official Development Aid (ODA) and international institutions with relevant mandates and expertise is indispensable for assessing gaps and needs, capacity development, formulation of relevant policies, piloting and adopting green practices. Ongoing ODA to CA countries, including support for fulfillment of obligations under Multilateral Environmental Agreements (MEA) might also be used for mainstreaming RE/GE.

¹⁷ Guide to Europe's Environmental Assessment of Assessments EE-AoA 2011', EEA, 2010, Technical Annex, pg 37

¹⁸ Guide to Europe's Environmental Assessment of Assessments EE-AoA 2011, EEA, 2010, Annex 1. Pg.11

Table 3.1. Green Economy and Resource Efficiency topics of the EE-AoA

Green economy	Resource efficiency
Renewable energy	Use of natural capital (including forestry, agriculture, urbanisation, linked to the use and degradation of land, soil, water and biodiversity)
Energy efficiency	Water efficiency in industrial, rural and urban areas
Mobility (air quality, emissions and noise)	Life-cycle analysis
Industry (emissions and waste)	Environmental accounting
Innovations	Consumption and production patterns
Environmental impact assessment (EIA) and Strategic environmental assessment (SEA)	
Governance	
Corporate social responsibility and environmental reporting	

Table 2.1 in Subchapter 2.2 of this CA-AoA shows data from OECD¹⁹ on Gross National Income (GNI) and GNI per capita including official development aid (ODA) and the share of ODA in GNI in 2009, underlining the significant role of ODA in the development of some CA states. The relatively high share of ODA in Kyrgyzstan and Tajikistan could be a driving force for more sustainable and greener development patterns in these countries.

Kyrgyzstan received ODA for implementation of its Development Strategy 2007-2011, including MDGs, for water and energy sector reform and infrastructure, and for improved land management and agricultural infrastructure, and GEF resources for a number of environmental projects implemented by ADB, UNDP, UNEP and WB, presenting opportunities for direct and indirect RE/GE mainstreaming.

Tajikistan received ODA for poverty reduction. Its National Development Strategy

was developed with the active involvement of the donor community. The ADB funded infrastructure projects, the WB supported the water sector, land management, and agriculture, and GEF resources via UNEP, UNDP and ADB were intensively used for environmental projects.

RE/GE is relevant for sectors such as agriculture, industry, mining, energy, construction and services, including infrastructure and resource bases. A wide range of national authorities and institutions, including ministries of economy, agriculture, energy, construction, forestry, industries, mining, transport, water resources, are involved in the assessments.

National environmental authorities in CA countries have different status: ministries in Kazakhstan and Turkmenistan, State Committees in Tajikistan and Uzbekistan and the State Agency in Kyrgyzstan (all hereinafter referred to as MoE). They are responsible for environmental policy and management, environmental monitoring and representation of CA countries in MEAs. They are also initiators of SD

¹⁹ Statistics on Resource Flows to Developing Countries – © OECD 2011, pg 61.

strategies including CTSDs in Kazakhstan, Kyrgyzstan and Tajikistan.

The MoEs of Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, as an obligation under the UNECE Aarhus Convention, have to produce State of Environment reports (SoERs) and make them accessible to the public. Uzbekistan is not a member of the Aarhus Convention and its MoEs prepare SoERs within national programmes.

Kazakhstan is a good example of national environmental reporting as an obligation under the Aarhus Convention. On behalf of the MoE of Kazakhstan, annual national environmental reports are prepared by the Kazakh National Scientific Institute of Environment and Climate (KazNIEC). These are available online via the website of the MoE. The MoE, through its subsidiary National Hydrometeorological Service (Hydromets) also prepares quarterly and annual reports for the eight territories of Kazakhstan, six of which are geographically selected on the river-basin principle.

The MoEs of other CA countries, in the period considered (2007-2011), also produced SoERs, but not on a regular basis, and their production was supported mainly through ODA. The MoE in Kyrgyzstan produced a SoER for 2008 and the MoE in Turkmenistan one for 2009, both with the support of UNEP. UNDP also produced one SoE assessment for Kyrgyzstan in 2007. The MoE of Tajikistan produced an information bulletin on the SoEin 2007, with the assistance of the OSCE. Uzbekistan has prepared two nationally-funded SoERs, and one SoE assessment with the support of UNDP.

Environmental monitoring is the responsibility of the MoE in Kazakhstan, because of the subsidiary status of KazHydromet. In other CA countries, since Hydromets are separate agencies under the Government or, in Kyrgyzstan, a subsidiary of the Ministry of Emergencies and Civil Defense (MECD), environmental monitoring is shared between MoEs and Hydromets. In regard to RE/GE, Hydromets in CA countries provide mobility-related (air quality,

emissions) and industry-related (emissions) data.

Environmental Performance Reviews (EPR) by UNECE strongly complements the SoE assessments in CA countries, especially in those with no regular SoE reporting. EPRs have been produced for Kazakhstan in 2008, Kyrgyzstan in 2009 and Uzbekistan in 2010. The first EPR for Tajikistan was produced in 2004 and the first EPR for Turkmenistan is currently under development.

National reports to the UN Framework Convention on Climate Change (UNFCCC), the UN Convention on Biological Diversity (UNCBD), the UN Convention to Combat Desertification (UNCCD), and the UNECE Conventions are funded nationally in Kazakhstan and commissioned by the MoE either to its subsidiaries or through tenders, to other non-subsidiary national institutions. Other CA countries use ODA for producing the national reports. UNDP, and in some cases UNEP, provide funding and substantive assistance for producing these reports. MDG reporting in CA countries is carried out with assistance mainly from UNDP and in some cases other UN agencies operating at the national level in CA countries.

National Statistic Agencies (NSA) of CA countries produce annual environmental and sectoral statistics publications. Kazakhstan and Kyrgyzstan make these freely available on the NSA web-sites. In the case of Tajikistan, Turkmenistan and Uzbekistan, statistics publications can only be ordered through Governmental agencies or purchased.

International organisations such as UNDP, UNECE, WB and EBRD have played a significant role in national RE/GE thematic and sectoral assessments in most CA countries during the past five years:

- UNDP in Kazakhstan for assessing energy efficiency barriers and the potential for wind energy;

- UNECE has prepared housing sector assessments for Kyrgyzstan and UNDP reported on poverty reduction through sustainable development;
 - WB and the International and Regional Financial Institutions (IFI) (ADB, EBRD and several others) have prepared a climate resilience report for Tajikistan and Oxfam International has produced a climate-change survey as well as climate-change and poverty assessments;
 - UNDP in Uzbekistan has produced a renewable energy development assessment and livestock production assessment;
 - EBRD has produced reviews on the energy sector and on renewable energy sources for all five CA countries.
- There are no available RE/GE-relevant thematic or sectoral assessments uploaded in the Virtual Library and RE/GE Country Fiche for Turkmenistan, other than the above-mentioned EBRD reviews.

Table 3.3: Institutions involved in national green economy assessments

Assessments	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
National Assessments					
National reports on environment	MoE Kz*, KAZNIIEC	MoE Kg,	MoE Tj,	MoE Trm,	MoE Uz,
Set of environmental indicators	MoE Kz, UNECE, UNEP	MoE Kg, UNECE, UNEP	MoE Tj, UNECE, UNEP	UNECE, UNEP	MoE Uz, UNECE, UNEP
National SD concepts + indicators	2007-2024	no data	2007-2030	Vision 2020	no data
Environmental Compendium	MoE Kz, UNECE, UNEP	UNECE, UNEP	UNECE, UNEP	UNECE, UNEP	MoE Uz, UNECE, UNEP
Environmental, sectoral statistics	Stat Kz	Stat Kg	Stat Tj	Stat Trm	Stat Uz
EPR	UNECE	UNECE	UNECE	No report	UNECE
UNFCCC 2 nd National communication	MoE Kz - KazNIEC	MoE Kg, UNDP	MoE Tj, UNDP	MoE Trm, UNEP	NHS Uz, UNDP
UNCCD national reports	MoE Kz - KazNIEC	NCCD Kg, UNCCD	SCLM Tj, UNCCD	NCCD Trm, UNCCD	NHS Uz, UNCCD
MDG Reports	Gov. Kz, UNDP	Gov. Kg, UNDP	MoEcon.Tj, UNDP	Gov. Trm, UNDP	Gov. Uz, UNDP
Green economy/ growth	NESDCA	No data	No data	No data	No data
Development and sectoral assessments	Gov.Kaz, UNDP	UNECE, UNDP	UNDP	No data	UNDP
Country profiles: Wind, Biomass, Solar, Geothermal, Hydroelectric	EBRD	EBRD	EBRD	EBRD	EBRD
Energy country profiles	EBRD	EBRD	EBRD	EBRD	EBRD

*MoE KZ is an abbreviated title. Institutions involved in assessments are listed in Annex 3.1

Agriculture, energy, mining, and housing authorities in the CA states have participated in the preparation of the above-mentioned assessments. However there is still a crucial need for further involvement of national authorities and institutions, NGOs and the business sector.

The role of Governments in enforcing and attracting the interest of the business sector to RE/GE is indispensable. International development banks such as WB, ADB, and EBRD through their facilities may also generate interest in RE/GE in the business sector in CA.

NGOs play an important role in raising the awareness of consumers inefficient and green attitudes, and community-based organisations (CBOs) may play an important role in resource-efficient and green livelihoods.

The business sector and NGOs of CA were able to be informed and be active participants in RE/GE-relevant multi-stakeholder events and dialogues at the MCED-6 in Astana 2010, dedicated to the role of civil society and the business sector in green growth²⁰, which was arranged jointly by UNESCAP and CAREC in cooperation with Kazakhstan's Business Association for Sustainable Development (KBASD).

Several SoE-type and thematic assessments have been developed by ADB, EADB, CAREC, UNESCO and UNEP RRC AP, jointly with the Interstate Commission on Sustainable Development of the International Fund for Saving the Aral Sea (ICSD IFAS), covering various aspects of RE/GE at the sub-regional level. A table of sub-regional and regional RE/GE assessments is given in Annex 3.2.

Pan-European regional assessments by EEA, EEA/UNEP, FAO, OECD, UNECE, WB and several Asian-Pacific assessments by UNESCAP on green growth were

reviewed and analysed for this assessment in Chapter 3.3.

UNEP, through its Green Economy Initiatives²¹, has produced several global-level RE/GE assessments. OECD is currently developing its Green Growth Strategy²², which will be launched soon.

3.3 Overview of resource efficiency/green economy assessments

There are only a few assessments dedicated to the green economy and green growth covering CA. These are briefly overviewed in this introduction to Chapter 3.2 and then included in the analysis in Chapter 3.3.

At the global level, the Green Economy Report, 2011 and several related in-progress publications by UNEP under its Green Economy Initiative, are of direct relevance to RE/GE in terms of strategy, policy formulation and practices: *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication, 2011*; *Green economy success stories, 2010*; *Green Economy Report: A preview, 2010*; and *Global Green New Deal – Policy Brief, 2009*.

As the Asia-Pacific region, starting with MCED-5 in Seoul, is focusing on green growth, UNESCAP has prepared the following assessments: *Green Growth, Resources and Resilience: Environmental Sustainability in Asia and the Pacific 2010*; *Financing an inclusive and green future: A Supportive Financial System for Achieving the Millennium Development Goals in Asia and the Pacific, 2010*; and *Greening the Growth in Asia and the Pacific 2006*; all these have some relevance to CA. The first two of these three assessments reviewed and further mainstreamed the concept of green growth in Asia and the Pacific, lead-

20 http://www.unescap.org/esd/mced6/side_events/documents/Outcomes%20of%20Major%20Stakeholder%20Activities%20at%20MCED-6.pdf

21 <http://www.unep.org/greeneconomy/>
22 http://www.oecd.org/document/10/0,3746,en_2649_37465_44076170_1_1_1_37465,00.html

ing to MCED-6 in Astana, 2010. The third was a publication of the Regional Implementation Plan for Sustainable Development in Asia and the Pacific, 2006-2010.

There is only one national green growth assessment in CA, namely the National Report on integration of the Green Growth tools in the Republic of Kazakhstan, 2010, which was developed by the Network of Experts for Sustainable Development of Central Asia (NESDCA) within the framework of the UN-ESCAP pilot project on Adaptation and integration of the Green Growth tools and policies into the strategic planning system of the Republic of Kazakhstan, funded by the Korean International Cooperation Agency (KOICA). The aim of this report was to inform the public about the green growth concept. It contains a methodology of the concept, an assessment of the eco-efficiency of the national economy, an overview of the use of the principal green growth tools in Kazakhstan, and recommendations for the introduction of green growth principles into the strategic planning system.

There are as yet no special Green Economy/Growth publications in other CA countries. RE/GE is covered through SoE thematic and sectoral assessments in these countries.

With respect to the availability of national RE/GE assessments in CA as well as compendia and sets of indicators, it is underlined that EE-AoA and consequently CA-EoE were instrumental in improving their accessibility through their inclusion in the EE-AoA Virtual Library. Country Fiches of the CA-AoA referring to the on-line addresses of all included sources are another source for accessing RE/GE assessments on CA.

3.3.1 Resource efficiency / green economy in state of the environment assessments

All national SoERs and one Sub-regional Integrated Environment Assessment: Central Asia, 2007, jointly developed by UNEP RRC AP and ICSD IFAS reporting on the state of

natural resources, environmental policy and responses to key environmental issues, are reviewed in Table 3.4 for relevance to the RE/GE sub-themes and topics.

The **Green Economy** (GE) topics covered (Table 3.1) are renewable energy, energy efficiency, mobility (air quality, emissions and noise), industry (emissions and waste), innovations, environmental impact assessment (EIA) and strategic environmental assessment (SEA). Governance, corporate social responsibility and environmental reporting are not covered by the SoE assessments in CA.

The **Resource Efficiency** (RE) topics covered include use of natural capital (including forestry, agriculture, urbanisation linked to the use and degradation of land, soil, water and biodiversity) and water efficiency in industrial, rural and urban areas. Issues such as life-cycle analysis, environmental accounting, consumption and production patterns are not covered by the CA national and sub-regional SoERs reviewed.

The coverage of RE/GE topics is shown in Table 3.4. It shows some imbalance in the percentages and numbers of pages devoted to each topic. For example, the industry topic in the four Kazakhstan SoERs make up only 4.9 per cent of the total despite containing 44 pages. And only one page of the only relevant SoE Information Bulletin in Tajikistan is the highest coverage of the energy efficiency topic (2.5 per cent) of all the GE topics considered in all CA national assessments.

The same tendency is observed in the coverage of RE topics. For the only RE topics covered in the SoE assessments, **use of natural capital and water efficiency in industrial, rural and urban areas**, the highest coverage (7.2 and 1.7 per cent respectively) is for Kyrgyzstan, while in terms of number of pages, the Kazakhstan SoERs has twice as many on the same topics, but with very low coverage (2.7 and 0.7 per cent respectively).

The second EPRs for Kazakhstan, Kyrgyzstan and Uzbekistan contain Part 3. Integration of Environmental Concerns

into Economic Sectors and Promotion of Sustainable Development and some other chapters are valid sources for assessing RE/GE-related state and performance in these countries. Most of the conclusions and recommendations of the EPRs are relevant as a baseline for the formulation of RE/GE policies and relevant activities in CA countries.

Table 3.4 also includes the set of environmental indicators used in CA countries, which include several relevant to RE/GE. In Kazakhstan, the Strategic Plan of MOE for 2011-2015 and the Zhaysyl Damu programme contain clear target indicators on air pollution, utilisation and recycling of industrial and municipal wastes, air pollution, soil and water pollution, emission reduction, increase of the monitoring network, and the dynamic of relevant investments.

In Kyrgyzstan, there are no RE/GE indicators in use, except MDG-7. The Country Development Strategy for 2007-2010 refers to MDGs, but is already outdated. The as

yet unapproved Concept of transition to SD by 2035 does not contain RE/GE indicators.

Tajikistan has a set of environmental indicators elaborated by UNECE in 2008, which contains several RE/GE-relevant indicators. The Concept of Transition to SD by 2030 contains only one table with macroeconomic indicators and MDG target indicators.

There is no RE/GE indicators available for Turkmenistan except overall macroeconomic and MDG indicators. The RE/GE sub-regional sets of environmental indicators mentioned below cover Turkmenistan and other CA countries.

The Environmental Profile of Uzbekistan, 2008 produced by UNDP, is an indicator-based assessment, elaborated on the basis of the EEA/UNECE/UNEP set of indicators for EECA countries. It analyses the past and provides dynamic and trend indicators on climate change, atmospheric pollution, agriculture, wastes, environment and health, which are of some relevance to RE/GE.

Table 3. 4. Overview of RE/GE in SoE assessments

	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan	Sub-region
1	2	3	4	5	6	7
Number of Reports, Indicator sets, compendia, statistics	4 – SoER 6-indicator set* 2-env. compendium 7- statistics** 2-EPR	2-SoER 3-indicator set* 1-env. compendium 7- statistics** 2-EPR	1- SoER 3-indicator set* 1-env. compendium 5- statistics** 1-EPR	1-SoER 1-indicator-set* No data-env. compendium 7- statistics**	2-SoER 5-indicator set* 3-env. compendium 10- statistics** 2-EPR	1-SoER 3-indicator set * 3-env. compendium
RE/GE topics coverage in SoERs						
GE						
- Renewable energy	X (1 - 0.1%)	X (1 - 0.6%)	X (1 - 2.5%)	X (0.5 - 0.4%)	X (13.5 - 3.5%)	X (2 - 1.3%)
- Energy efficiency	X (8 - 0.9%)	X (1 - 0.6%)		X (0.5-0.4%)	X (5 - 1.3%)	X (2.5 - 1.6%)
- Mobility	X (44.5 - 4.9%)	X (1.5 - 0.7%)			X (10 - 2.6%)	X (1 - 0.6%)
- Industry		X (5 -3 %)				
- Innovations		X (9 - 5.2%)				
- EIA and SEA						

1	2	3	4	5	6	7
RE						
- Use of natural capital	X (25 - 2.7% ¹)	X (12.5 - 7.2% ²)	X (1 - 2.5% ³)	X (0.5 - 0.4% ⁴)	X (12.5 - 3.2% ⁵)	X (10 - 6.3% ⁶)
- Water efficiency in industrial, rural and urban areas	X (6 - 0.7% ⁷)	X (3 - 1.7% ⁸)			X (3 - 0.8% ⁹)	

* – indicator set:

Kazakhstan – 1. Concept of transition of Kazakhstan to Sustainable Development for 2007-2024, 2006; 2. Sectoral programme «Zhaysyl damu for 2010-2014», from September 10, 2010, № 924; 3. Strategic plan of Ministry of environmental protection of the Republic of Kazakhstan for 2011 – 2015; 4. The rules for determining an indicators of quality of the environment; 5. Millennium Development Goals in Kazakhstan Report, 2010; 6. Environmental Performance Index 2010

Kyrgyzstan – 1. Concept of transition of Kyrgyz Republic to Sustainable Development for 2009-2035, 2009; 2. The second periodic progress report on the Millennium development goals in the Kyrgyz Republic, 2009; 3. Environmental Performance Index 2010

Tajikistan – 1. Concept of transition of the Republic of Tajikistan to Sustainable Development, 2007; 2. Millennium Development Goals Tajikistan Progress Report, 2010; 3. Environmental Performance Index 2010

Turkmenistan - 1. Environmental Performance Index 2010

Uzbekistan – 1. Environmental Profile of Uzbekistan (based on indicators), 2008; 2. Environmental indicators for Uzbekistan, 2007; 3. Guidelines on use of environmental indicators, 2005; 4. First National Millennium Development Goals Report for Uzbekistan, 2006; 5. Environmental Performance Index 2010

Sub-region – 1. Environmental Indicators for Countries of Eastern Europe, the Caucasus and Central Asia; 2. Trial compendium of environmental indicators, prepared by UNEP, 2007; 3. Eco-efficiency Indicators: Measuring Resource-use Efficiency and the Impact of Economic Activities on the Environment, UN ESCAP, 2009

** – RE/GE statistics:

Kazakhstan – 1. Statistical compendium ‘Environmental protection and sustainable development of Kazakhstan’; 2. Brochure ‘Kazakhstan in figures’; 3. Statistical bulletins (Series: 3. Agriculture, 4. Transport, 5. Construction, 16. Environmental protection); 4. Statistical compendium ‘Agriculture, forestry and fishing’; 5. Statistic compendium ‘Construction in Kazakhstan’; 6. Statistic compendium ‘Transport and communication’; 7. Statistic compendium ‘Fuel-energy balance of Kazakhstan’

Kyrgyzstan – 1. Statistical compendium ‘Kyrgyzstan’; 2. Kyrgyzstan in figures 2005-2009; 3. Statistical yearbook of Kyrgyz Republic 2005-2009; 4. Agriculture of Kyrgyz Republic 2006-2010; 5. Industry of Kyrgyz Republic 2005-2009; 6. Statistical bulletin «Main results of annual reports on investment and construction»; 7. Statistical compendium «Tourism in Kyrgyzstan»

Tajikistan – 1. Statistical yearbook of Tajikistan, 2010; 2. Tajikistan in figures, 2010; 3. Environmental protection in Tajikistan, 2010; 4. Construction in Tajikistan, 2010; 5. Transport and communication in Tajikistan, 2010

Turkmenistan – 1. Statistical yearbook of Turkmenistan: 2000—2009; 2. Statistical compendium ‘Environment and natural resources use in Turkmenistan for 2009’; 3. Agriculture of Turkmenistan 2008-2009; 4. Transport and communication for 2007—2009; 5. Industry of Turkmenistan for 2006-2008; 6. Environment and natural resources use in Turkmenistan for 2009; 7. Car transport of Turkmenistan for 2006

Uzbekistan – 1. Quarterly statistical publication ‘Statistical Review of Uzbekistan’; 2. ‘Statistical Review of Uzbekistan for 2007’; 3. Annual statistical bulletin ‘Uzbekistan in Figures’; 4. Statistical yearbook; 5. Statistical publication «Industry of Uzbekistan»; 6. Statistical publication «Agriculture of Uzbekistan»; 7. Statistical publication «Construction of Uzbekistan»; 8. Statistical publication «Transport and communication in Uzbekistan»; 9. Annual Statistical Bulletin ‘Key indicators of nature protection and rational use of natural resources of the Republic of Uzbekistan’ Quarterly statistically bulletin ‘Power system’; 10. 4-CH Consumption and residual fuel

At the sub-regional level, RE/GE-relevant indicators have been developed by UNECE, UNEP and UNESCAP. EEA/UN-ECE/UNEP Environmental Indicators for Countries of Eastern Europe, the Caucasus and Central Asia, 2007 address RE/GE-relevant indicators for passenger transport demand, final energy consumption, total energy consumption, energy intensity, renewable energy consumption, fertilizer consumption, and the use of ozone-depleting substances. As already mentioned, Uzbekistan has developed its own set of indicators.

The UNEP RRC AP Appraisal report on priority ecological problems in Central Asia, 2006 addresses air pollution and waste management, the degradation of mountain ecosystems, and land degradation, thus focusing on subjects to be addressed by the Regional Environmental Action Plan (REAP)²³ for Central Asia. It covers the entire CA region and provides data for the period 1990-2005, which allows the development of state of the environment in the CA sub-region to be assessed.

The 2009 UN ESCAP report on Eco-efficiency Indicators: Measuring Resource-use Efficiency and the Impact of Economic Activities on the Environment, provides data on CA countries and can serve as a compendium for environmentally-integrated macro- and micro-economic indicators, including integrated indicators for enterprises.

The Environmental Performance Index of the Yale University²⁴ is a comprehensive set of environmental indicators, including those relevant to RE/GE, providing indicator-based country profiles for all the countries of the world. It can also be used as a source of relevant information on CA countries.

As for statistics publications, there are environmental statistics and several other statistics publications (Table 3.10), includ-

ing agricultural, mining, construction, transport and other economic and sectoral statistics from all CA countries. However availability of all of these, except for Kazakhstan and Kyrgyzstan, is limited.

The environmental annual statistics publications of Kazakhstan are comprehensive and cover economic, social and environmental statistics measured against the Concept on Transition to SD by 2024. Other economic and sectoral statistics for Kazakhstan are also accessible on-line, but they are sector-specific and focus on the quantitative dynamics of production. However for both environmental and sectoral statistics, there is a need to elaborate and adapt new green economy compendia and indicators to measure resource, energy, and labour intensity and then energy, resource and cost efficiency, chain of production and consumption, as well as production and life-cycles.

The report Monitoring of the Country Development Strategy for 2007–2010 in Kyrgyzstan provides comprehensive country development statistics accessible on-line, focusing mainly on macroeconomic performance, social and sectoral indicators, underlining the dynamics of growth and productivity and thus only partly RE/GE-oriented. The Social-Economic Situation of the Kyrgyz Republic published quarterly is accessible on-line. It includes sectoral statistics on agriculture, food processing, manufacturing, the construction sector, energy and trade statistics, but only shows gross production. Separately MDG statistics containing data on MDG-1 and 7 are also accessible on-line.

The RE/GE Country Fiches indicate a variety of relevant statistics publications in other CA countries (Tajikistan, Turkmenistan, Uzbekistan), including overall country statistics and sectoral statistics on agriculture, industries, construction, transport and communications, however they are not accessible on-line and the only way to access them is to order them through governmental agencies or purchase them.

23 'Appraisal reports on priority ecological problems in Central Asia,' 2006, UNEP RRC, Foreword. Pg 7.

24 <http://epi.yale.edu/Countries/>

3.3.2 Resource efficiency / green economy in thematic and sectoral assessments

Among thematic national assessments, MDG national reports in CA countries, mainly developed by the UN System, are important sources for assessing state and progress in mainstreaming social inclusiveness and environmental sustainability into development.

As a guidance for mainstreaming poverty reduction (MDG-1) and environmental sustainability (MDG-7), the 2010 UN-ESCAP report *Financing an inclusive and green future: A Supportive Financial System for Achieving the Millennium Development Goals in Asia and the Pacific*, is a useful tool. Some of its statistics covers CA countries.

The Second National Communications of CA countries to UNFCCC were carried out

Box 3.2

Financing an inclusive and green future. A supportive Financial System for Achieving the Millennium Development Goals in Asia and the Pacific, 2010

This report was prepared by an interdivisional task force of the ESCAP secretariat. It considers the supportive financial systems that countries in Asia and the Pacific will need to promote growth that is both inclusive and sustainable – green growth which will help them achieve the Millennium Development Goals while also stewarding the regions natural resources for future generations.

The report focuses on the Millennium Development Goals, warning that the region is off track on many crucial indicators, including child and maternal mortality, shows that the goals are still within reach, given sufficient determination and financial resources, and identifies potential sources for such funds at the national, regional and international levels, including changing spending priorities.

Source: <http://www.unescap.org/66/documents/Theme-Study/st-escap-2575.pdf>

by national institutions and national project teams with national funding in Kazakhstan. UNDP and UNEP provided support for their preparation in other CA countries. The reports are RE/GE-relevant through reporting on the state of resources and their use, economies and their main sectors, greenhouse gas inventories, mitigation capacities and measures. Practical recommendations for decision-makers need to be strengthened in future assessments. There is a need to ensure follow-up assessments, which will focus on adapting technical findings to practical recommendations for policy formulation for the various sectors of the economy. The UNCCD and UNCBD national reports of the CA countries can also be considered in the RE/GE context. Taking into consideration the UNCBD COP-10 decision on National reporting: review of experience and proposals for the fifth national report and its Guidelines²⁵ the fifth national reports to UNCBD need to be more RE/GE-relevant.

²⁵ UNEP/CBD/COP/10/27*, 20 January 2011, pgs. 144-151

There are several national thematic and sectoral assessments in CA, covering some RE/GE topics, mostly under ODA funded projects, of assessment needs or of a pilot nature.

Kazakhstan has developed Report on mining for UNCSO 18, 2010 and there are two more thematic assessments by UNDP: Identification of the interest, possibilities and willingness of heat power producers and customers to strengthen the energy efficiency for reduction of municipal payments, upgrade of enterprises and impact decrease of global climate, 2008, and Prospective of Wind Power Development in Kazakhstan, 2006, focusing on the state, pressure and impact of several RE/GE problems. The last two assessments were developed within relevant, but already completed UNDP projects and require follow-up actions to ensure that their findings and recommendations are reflected in national policies, legislation, and national and sectoral development programmes. There are two RE/GE-relevant assessments in Kyrgyzstan: Country profile on the

housing sector of Kyrgyzstan, published in 2010 by UNECE, and Poverty alleviation through sustainable development of local communities, 2008 by UNDP. The latter covers energy efficiency and saving, renewable energy use, sustainable fishery, sustainable livelihood issues, and recommendations to solve them.

There are two thematic assessments in Tajikistan: Pilot Program for Climate Resilience – Tajikistan, jointly produced in 2009 by WB, ADB, EBRD, International Finance Corporation (IFC) with participation of UNDP, and Climate change survey in Tajikistan, 2010 by Oxfam International²⁶. The first shows climate-change adaptation needs, starting from building of institutional capacity to practical infrastructural projects, which may be used as a framework for mainstreaming RE/GE in Tajikistan. The second focuses on the impacts of climate change.

No thematic or sectoral RE/GE-relevant assessments were identified for Turkmenistan.

There are two RE/GE-relevant project-based assessments by UNDP in Uzbekistan: Outlook for Development of Renewable Energy in Uzbekistan, 2007, and Livestock Production in Uzbekistan: Current State, Issues and Prospects, 2010, a joint product of UNDP and MASHAV (Israel's Agency for International Development) in cooperation with relevant governmental institutions of Uzbekistan. The first summarises achievements in Uzbekistan in the utilization of and capacity for renewable energy, specifically solar energy. The second is an indicator-based sectoral outlook, which is recommended to be used by other CA countries or other sectors of the economy in Uzbekistan as an example of sectoral assessments. While it does not mention RE/GE per se, it includes all the considerations needed in terms of outputs, yields, productivity, fertility, intensity and efficiency, comparing it with agriculture

performance in other countries. It can easily be used as a baseline for RE/GE mainstreaming in the agricultural sector of Uzbekistan.

There are also several sub-regional assessments containing RE/GE-relevant sub-themes and topics:

- the ADB Central Asia: Atlas of Natural Resources, 2010 assessment is an output of the ten-year ADB activity in CA within the Central Asian Countries Initiative on Land Management (CACILM)²⁷; it contains country profiles and overviews of natural, mineral and energy resources, agriculture, environment and poverty, sustainable development processes in CA countries and the sub-region, including commitments of CA countries under global and UNECE environmental conventions, MDGs and economic development, of RE/GE-relevance;
- Gap Analysis in the area of Climate Change and Energy Efficiency in Central Asia: Defining opportunities for CAREC, 2009 is a survey-based gap analysis in the field of climate change and energy efficiency, and recommendations to address the gaps;
- Use of Renewable Energy Sources in Central Asia: Perspectives and Capacity Building needs, 2008 by UNESCO is an overview of the use of and capacities for renewable energy in CA;
- Water and Energy Resources in Central Asia: Utilization and Development Issues, 2008 by EADB contains chapters on the state of hydro-energy use and plans for further development of big hydropower generation plants in CA and is also relevant to renewable energy and energy efficiency. It also contains an overview of the energy sector of CA with focus on energy production and consumption;

²⁶ <http://www.oxfam.org>

²⁷ 'Central Asia: ATLAS of Natural Resources', ADB, 2010: Pg. 9, <http://www.adb.org/documents/books/central-asia-atlas/central-asia-atlas.pdf>

- Land degradation in Central Asia, 2008, with an innovative set of indicators based on remote sensing and monitoring of land degradation, is

also an RE/GE-relevant assessment by ADB and its partners on the CACILM programme in CA.

Box 3.3

Land degradation in Central Asia, 2008

This report has been prepared within the framework of the CACILM Multi-country partnership framework support project.

It contains a brief introduction on the issue of land degradation in Central Asia, a review of land degradation indicators and the principal methods used for assessing land degradation, international experience in land degradation assessment, an extensive literature survey on the application of remote sensing technologies to land degradation assessment and monitoring, and the costs and benefits of various potential methods for gathering baseline information. It finishes with recommendations for the use of remote sensing technologies in Central Asia.

Source: <http://www.adb.org/Documents/CACILM/Land-Degradation-CentralAsia.pdf>

The regional thematic and sectoral RE/GE-relevant assessments covering CA both within Pan-European and Asian-Pacific activities include the 22 Pan-European, and 3 Asian-Pacific UNESCAP regional assessments mentioned in the RE/GE Country Fiches. Of the 22 Pan-European assessments 17 are UNECE, 1 OECD, 1 EEA/UNEP, 1 European Commission, 1 WB and 1 FAO reports.

Pan-European assessments include three UNECE regular reports within respective UNECE Conventions. Three consider issues of the forestry sector under climate change and its sustainable development and prospects in the green economy. FAO's Forests and Climate Change in Eastern Europe and Central Asia, 2010 provides forestry and climate-change country profiles. There are four assessments related to transport, health and the environment and air pollution, three on sustainable consumption and production, four related to climate-change mitigation, three on environmental policy and one on environmental financing.

The above assessments were reviewed following AoA methodology and are therefore the subject for analysis in Chapter 3.3.2 Since CA countries are part of EECCA, along with other countries of the former

Soviet Union with usually common development and environment features, a brief overview of the assessments covering CA among other EECCA countries includes:

- Mainstreaming Environmental Programmes Into Public Budgets: Survey on medium-term expenditure frameworks and the environment in the countries of Eastern Europe, Caucasus and Central Asia, OECD, 2010 considers public funding of environmental activities in 10 of the 12 EECCA countries, except Tajikistan and Turkmenistan. It contains indicators of funding and share of environmental expenditures in GDP, indicates ODA funding of environmental activities, assesses the ability of EECCA countries to carry out multi-year programming, planning and budgeting, provides relevant country profiles, and is of direct relevance to RE/GE in terms of capacities and abilities to promote RE/GE;
- Sustainable consumption and production in South East Europe and Eastern Europe, Caucasus and Central Asia, 2007, is a joint report by EEA and UNEP prepared for the Belgrade Conference and aimed at promoting sustainable consumption and production

(SCP) in SEE and EECCA countries. It is one of the most RE/GE-relevant publication in EECCA, providing concepts and definitions, assessing the state, needs and capacities for SCP in sectors such as industry and several consumption categories such as food, buildings, transport and wastes²⁸;

- Forests and Climate Change in Eastern Europe and Central Asia, 2010 by FAO²⁹ presents forestry sector profiles and activities in EECCA countries on mitigation and adaptation to climate change. Among CA countries it covers Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan.

As to RE/GE-relevant on-line resources, UNEP and UNESCAP web-portals contain specific green economy and green growth web-sites at <http://hqweb.unep.org/GreenEconomy> and <http://www.greengrowth.org> respectively. There are five online CA country profiles: wind, biomass, solar, geothermal, hydroelectric and energy, produced by EBRD at <http://www.ebrdrenewables.com/sites/renew/countries>. The Index Mundi at <http://www.indexmundi.com> provides data and statistics-based country profiles of the world, including RE/GE-relevant statistics. The UNECE web-site: www.uncece.org is a source for all the above-mentioned UNECE publications. The FOA web-site <http://www.fao.org/countries/55528/eng> gives agricultural profiles of countries of the world, including CA countries, which are relevant to this assessment.

3.3.3 CA resource efficiency /green economy assessments summary profile

The UN System and other international institutions play a major role in advancing the Green Economy/Growth (GE/G) concept, policies and relevant assessments

²⁸ http://www.eea.europa.eu/publications/eea_report_2007_3

²⁹ <http://www.fao.org/docrep/013/k9142e/k9142e00.pdf>

at the global, regional and national scales. Consequently the role of development aid in mainstreaming RE/GE in CA is crucial. Pan-European and Asian-Pacific regional environment and development processes are important through their assessments and activities promoting the concept of GE/G, policies and practices. The majority of RE/GE assessments in the CA-AoA are at the regional level. UNESCAP provides Asian-Pacific regional green growth assessments covering CA, and the Pan-European assessments covering CA are supported by a number of organisations, including UNECE, EEA, UNEP, EC, OECD, FAO, WB, EBRD, providing thematic and sectoral RE/GE-relevant assessments.

Only some of the assessments at the sub-regional level are of some relevance to RE/GE, and there is only one assessment at the national level, in Kazakhstan, with the title Green Growth. The others are either SoERs or thematic and sectoral assessments that have been tested for their content and topic relevance to RE/GE. EPRs are among the most RE/GE-relevant of the country-level assessments. The vast majority of these assessments are funded through ODA. RE/GE requires the integration of environmental considerations into economies, however the national SoERs assessed indicate only a limited coverage of RE/GE topics, indicating a still low environmental prioritization/mainstreaming in key economic sectors such as agriculture and forestry, oil and gas, industry, construction, transport and energy.

There are two possible ways of further mainstreaming RE/GE in national assessments: the first is RE/GE upgrading and mainstreaming of existing national reporting to relevant MEAs and other sector-specific multilateral agreements, the second is to support GE/G-specific global and regional strategies and agreements.

RE/GE indicators and statistics compendia need to be elaborated and used for RE/GE mainstreaming in SoERs and sectoral RE/GE assessments and statistical reports, a major switch from the existing focus on

gross productivity to resource, energy, labour intensity and efficiency.

The focus on climate change mitigation, energy efficiency, climate-change adaptation, sustainable land management, increase of agricultural productivity, green and organic farming, improved access to drinking water and sanitation, water saving, recycling and productivity, deriving from ODA support, also offers an opportunity to further support the concept of RE/GE.

The status of the **Agriculture and forestry sectors** of CA countries is reflected in several sub-regional ADB assessments and FAO country profiles. Forestry is indicated in MDG-7 through the areas covered by forests in each CA country. The report *Live-stock Production in Uzbekistan: Current State, Issues and Prospects, 2010*, produced jointly by UNDP and MASHAV (Israel's Agency for International Development) in cooperation with relevant governmental institutions in Uzbekistan, is a comprehensive indicator-based sectoral outlook, which can be recommended as an example of sectoral assessments which can be RE/GE mainstreamed in terms of outputs, yields, productivity, fertility, intensity and efficiency not only of livestock, but also other agricultural subsectors. There is a need for new statistics compendia, indicators and practices for greening agriculture in CA, specially focused on water-efficient and productive agriculture.

The **Energy sector** of CA is critical in terms of sub-regional integration. Several assessments underline this. The water and energy integration derived from Soviet times is currently being transformed. Both energy and energy supply still bear Soviet features in some CA countries, including direct or cross-sectoral subsidies to utility companies. Seeking such subsidies, the utility companies are not interested in exploiting the huge energy-efficiency and energy-saving potential, which would require market mechanisms, market prices, and reformation of the utility sector. Five online CA country profiles: on wind, biomass, solar,

geothermal, hydroelectric and energy, at <http://www.ebrdrenewables.com/sites/renew/countries> by EBRD, give a picture of the state, problems and prospects for the energy sector, energy saving and efficiency, and capacities and prospects for renewable energy in CA. Analysis of the barriers to energy efficiency in the UNDP project in Kazakhstan is a good source of findings related to energy sector problems and barriers to energy efficiency in CA countries.

The **Housing sector** is closely linked to energy saving and efficiency in CA countries. There is only one report on the housing sector, prepared by UNECE for Kyrgyzstan. The sector needs additional support from the RE/GE concept. Research and assessments in this field may lead to the development of the necessary standards and legislation. The 2008 UNDP Kazakhstan report *Identification of the interest, possibilities and willingness of heat power producers and customers to strengthen the energy efficiency for reduction of municipal payments, upgrade of enterprises and impact decrease of global climate*, focuses on energy saving in the housing sector. While the 2009 UNECE report on *Green Homes. Towards energy-efficient housing in the United Nations Economic Commission for Europe region 2009*, covers the entire EECCA region, it had almost no particular focus on CA.

The **Transport sector** is less addressed by the CA assessments under review, with no national or sub-regional assessments covering transport. In terms of air pollution and emissions in urban areas, it is one of the emerging environmental issues in CA. UNECE covers transport in its assessments for the entire EECCA region.

The **mining sector** is touched on in a number of national SoERs and in the 2010 ADB *Central Asia: Atlas of Natural Resources*. Sustainable consumption and production was addressed by the 2007 EEA – UNEP report *Sustainable consumption and production in South East Europe and Eastern Europe, Caucasus and Central Asia*.

3.4 Messages

This chapter provides an analysis of the RE/GE Review Templates. Four global, twenty regional (UNECE), seven CA sub-regional and thirty national assessments were reviewed (Annex 3.2). Comparison between these four geographical areas were used to assess priorities, gaps, assessment processes and their compatibility with each other and the EE-AoA requirements.

3.4.1 Coverage of RE/GE issues in CA assessments

Coverage of the RE/GE topics presented in Table 3.1 of Chapter 3.1 is assessed in Figures 3.1 and 3.2, the only difference being the use of future scenarios (including vulnerability, opportunities, competitiveness and migration) instead of Innovations in the column Green Economy, and adding Tourism to the column Resource efficiency in Table 3.1.

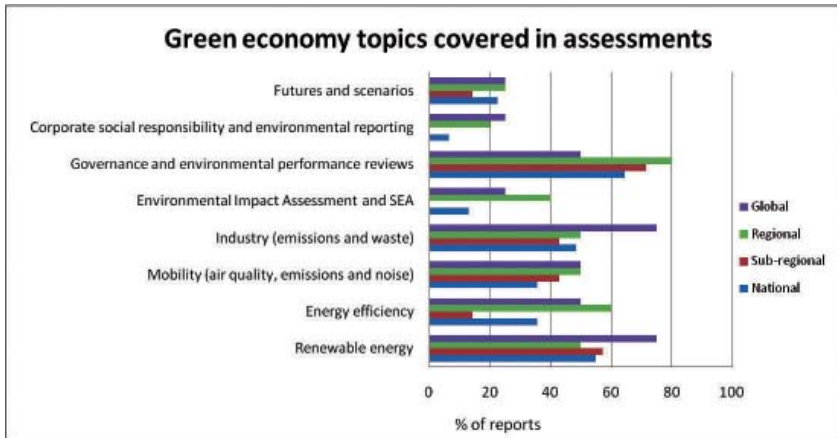


Figure 3.1. Coverage of Green Economy topics in reviewed assessments

The topic most covered in the majority of assessments is Governance (including institutional arrangements and multilateral environmental agreements) and environmental performance reviews. Regional assessments have the highest coverage of this topic (80 per cent) and global assessments the lowest (50 per cent).

The high coverage of Governance may be because of its combination with environment performance reviews, which are presented as separate country-level assessments. At the regional level, environmental performance is the focus of OECD's assessment Mainstreaming Environmental Programmes Into Public Budgets: Survey on medium-term expenditure frameworks and the environment in the countries of Eastern Europe, Caucasus and Central

Asia, 2010. While combining governance with environmental performance reviews strongly influences the picture, the link between the two is not obvious.

With respect to Resource Efficiency, Figure 3.2 shows that Tourism is an additional topic and is covered in 50 per cent of the global assessments, which is the highest of all Resource Efficiency topics for global assessments. Regional and sub-regional assessments do not cover Tourism at all and only 5 per cent of national assessments do.

In general Resource Efficiency topics are less covered than Green Economy topics, with up to 80 per cent coverage, while the highest coverage of Resource Efficiency topics (57 per cent of sub-regional assessments) is Use of natural capital (including

forestry, agriculture, urbanization linked to the use and degradation of land, soil, water and biodiversity). Average coverage of Green Economy topics is 50 per cent, and of Resource Efficiency topics only about 25 per cent.

Better coverage of Use of natural capital results from the wide range of natural resources and sectors considered in many thematic and sectoral assessments (agriculture, forests, land, waters).

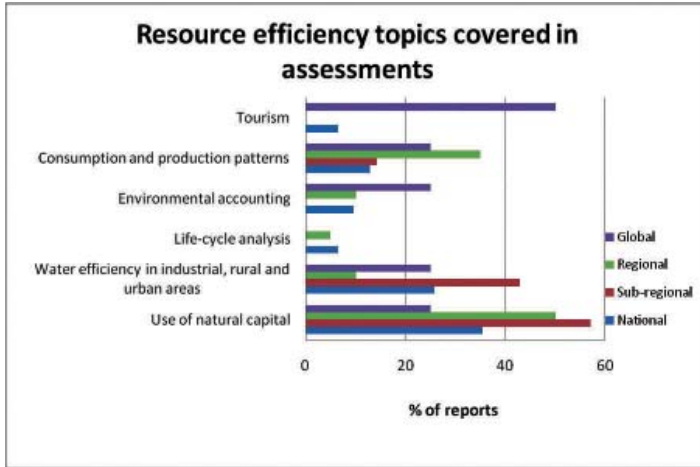


Figure 3.2. Coverage of Resource Efficiency topics in reviewed assessments

The least-covered Resource Efficiency topic is Life-cycle analysis. Only regional (5 per cent) and national (6 per cent) assessments cover it. Life-cycle analysis is a tool to identify environment damage from the first step of extracting or planting/yielding raw materials through use to recycling or disposal. It is therefore an important tool for measuring resource efficiency and environmental sustainability. Low coverage is an indicator of non-green status of CA and other economies covered by the assessments.

Low coverage of environmental accounting as well as life-cycle analysis underlines the use of non-green approaches. The same conclusion can be drawn from the low coverage of Corporate and Social Responsibility and environmental reporting under the Green Economy sub-theme.

Figure 3.3 shows the use of the **Drivers – Pressure – State – Impact – Response**

(DPSIR)³⁰ framework. Half the assessments do not use DPSIR and about a quarter either uses it or give no information.

SoERs use DPSIR in only 30 per cent of assessments. Since about 30 per cent of national assessments are marked as answering to this question, it can be assumed that they use DPSIR, but this was not clearly indicated in the assessments.

While Figure 3.3 shows that half the global assessments use DPSIR as a framework, detailed analysis shows that global as well as regional assessments focus more on other analyses such as **Legal, Policy, Trans-boundary, Hotspots, Trends**, and only State from the DPSIR framework is covered at the same level as the other analyses- Figure 3.4 and 3.5. This indicates that there are some gaps or uncertainties about the use of DPSIR.

³⁰ Guide to the Europe's Environmental Assessment of Assessments EE-AoA 2011, EEa, 2010, Annex 1. Pg.11

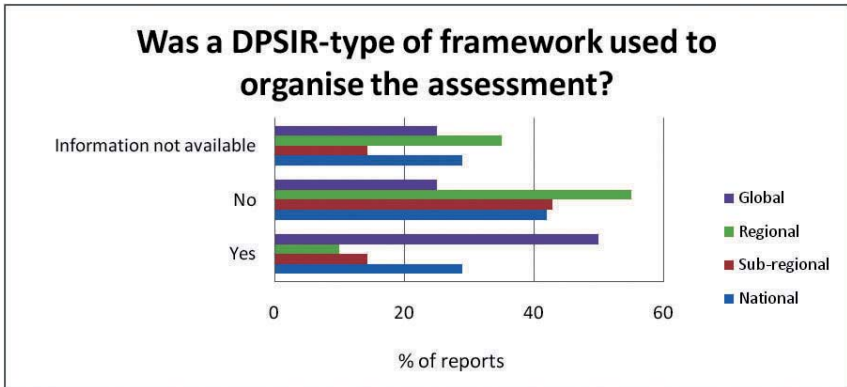


Figure 3.3. Use of DPSIR as a framework for organising assessments

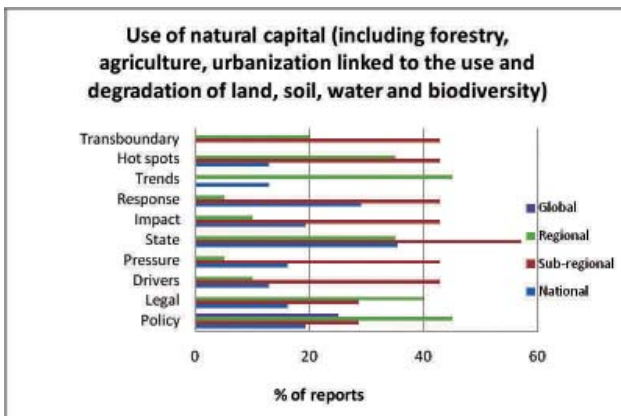
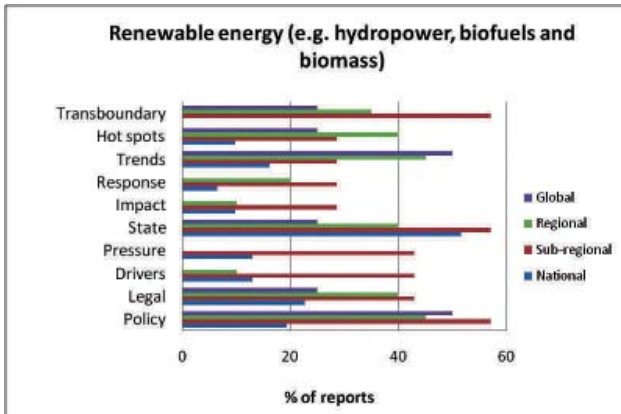


Figure 3.4. Analysis of most-covered RE/GE topics

Analysis of the use of DPSIR is based on two well-covered RE/GE topics, Renewable Energy and Use of natural capital. Two less-covered topics -Futures and Scenarios and from the Green Economy topics (Table 3.1) and Consumption and Production Patterns from the Resource Efficiency topics.

This overview of coverage shows that sub-regional assessments cover both Resource Efficiency and Green Economy with stronger focus on Transboundary, State

and Policy analyses . Regional assessments have stronger focus on Legal, Policy and Trends and also on State analyses. National assessments have low focus on Drivers in both topics, but make stronger focus on Responses analyses in Use of Natural Capital and make as everywhere strong focus on the State analyses. For both topics the national assessments also cover Legal, Policy and Trend sat a low but visible level.

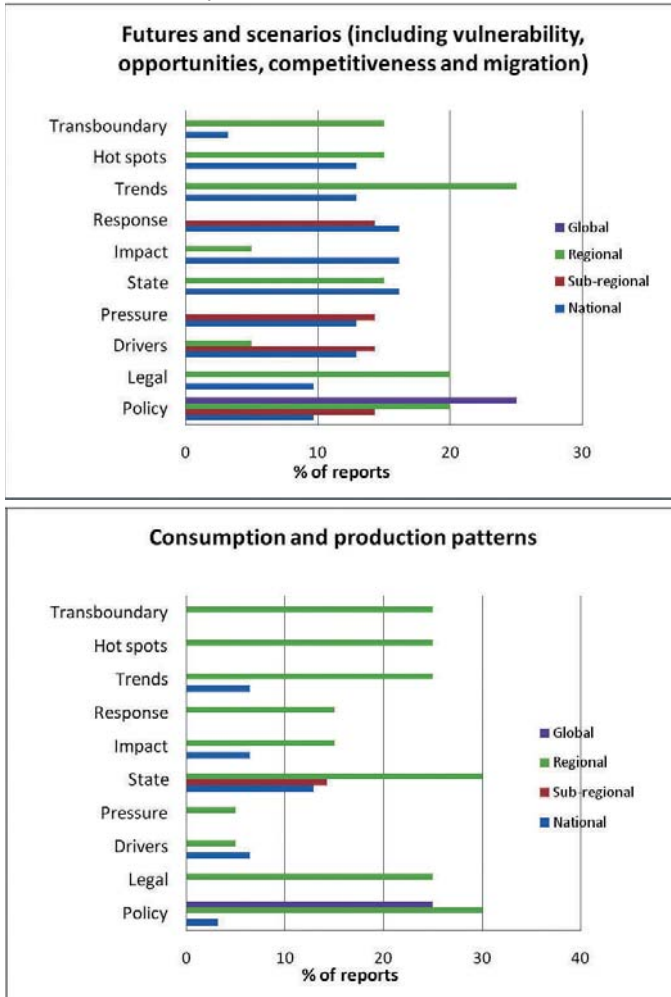


Figure 3.5. Analysis of little-covered RE/GE topics

The overview of high and low coverage of RE/GE topics shows that in national assessments most focus is on State and least on Drivers, with no visible difference in the less-covered assessments.

Sub-regional assessments of more-covered RE/GE topics do not differentiate between

DPSIR and other analyses, while regional and global assessments have clearly better coverage of Legal, Policy, Transboundary, Trends and also of State analyses from the DPSIR framework.

All global and regional assessments, but only 63 per cent of national and 65 per

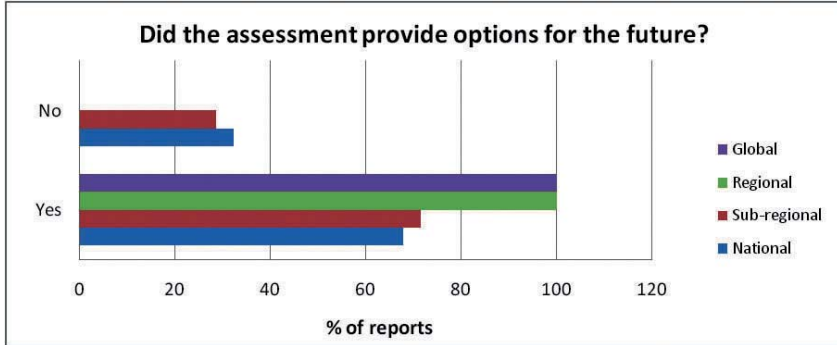


Figure 3.6. Future options for RE/GE assessments

cent of sub-regional assessments, provide recommendations for the future (Figure 3.6). This can also be linked to some extent to analyses of Responses, Drivers, Legal, Policy, and Transboundary.

A brief overview of priority concerns shows that most national assessments address climate change and its pressures on water resources, agriculture and land use and the energy sector, and the lack or

shortage of means to adapt it. There are almost no concerns about production and consumption and none about inefficient use of resources, except water resources. Sub-regional assessments also raise concerns about the impacts of climate change on water and energy resources, deteriorating water and energy infrastructure, agriculture and land management.

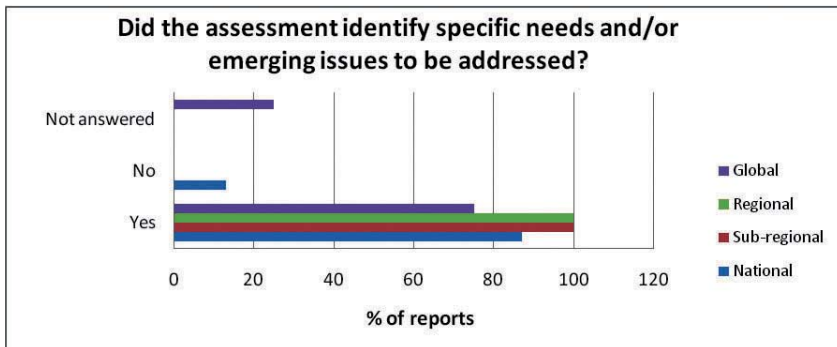


Figure 3.7. Specific needs and emerging issues in RE/GE assessments

Specific needs and/or emerging issues are addressed in 90 per cent of national assessments (Figure 3.7). These focus on monitoring climate change, strengthening institutional and human capacities for adapting to it, measuring and reporting GHG emissions, and developing national strategies for climate-change adaptation; integrated and rational use of natural resources, including water, mineral, land, bio-resources; strengthening the energy sector; and developing Green Growth strategies, policies, incentives and practical integration tools. Also addressed are environmentally-friend-

ly mining with better processing of raw materials, cleaner production technologies, more stringent environmental legislation on energy production and use, new statistics reporting frameworks and use of international reporting standards.

3.4.2 Major findings of the assessment process

The review templates include a series of questions on the assessments and related processes. Figure 3.8 shows the replies concerning regularity.

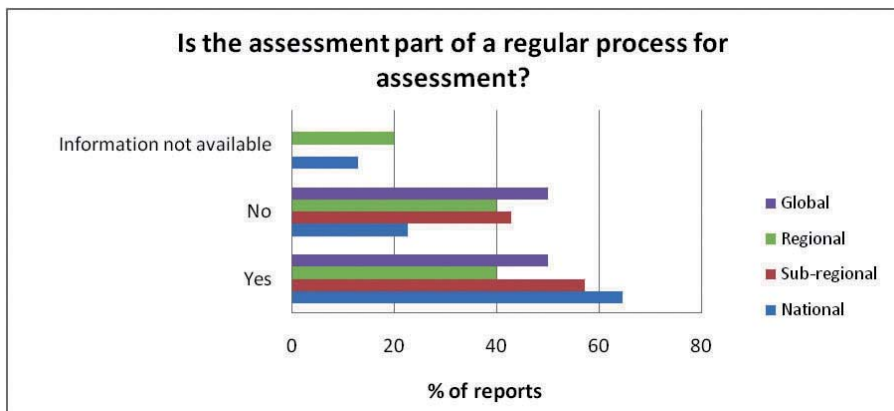


Figure 3.8. Regularity of RE/GE assessments

The 65 per cent regularity of national assessments probably results from the reporting obligations of CA countries to various MEAs or under national programmes. These assessments could mainstream RE/GE through new guidelines, similar to National reporting: review of experience and proposals for the fifth national report, 2010 and its Guidelines³¹ by the UN CBD Secretariat, or REPORTING ON CLIMATE CHANGE: User manual for the guidelines on national communications from non-Annex I Parties, 2003 by the UNFCCC Secretariat³², or a review and update of EPR

content by the relevant Working Group and then approval at UNECE CEP sessions.

The relatively high regularity of national assessments is a signal for mainstreaming RE/GE in the future, but, as the above overview and analysis underlines, there is still a need for development of new assessments, especially RE/GE sectoral and thematic ones, to be produced on a regular basis.

The types of assessment and the need to increase focus on Drivers and Response were also mentioned when discussing the DPSIR framework and other analyses. Figure 3.9 shows the types of assessments and the prevalence of status and process thematic assessments over impact, response and integrated ones at all levels, including national. This proves the need to

31 UNEP/CBD/COP/10/27*, 20 January 2011, pgs. 144-151

32 http://unfccc.int/files/essential_background/application/pdf/userman_nc.pdf

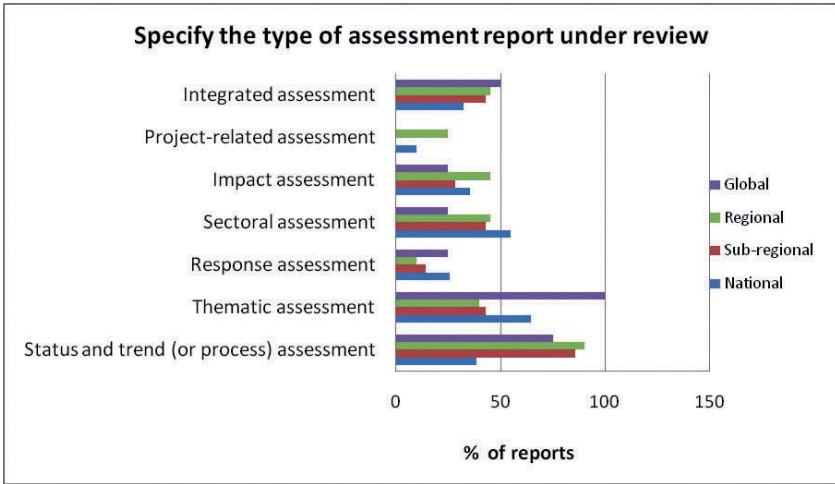


Figure 3.9. Type of RE/GE assessments reviewed

increase response and impact assessments, while there is still a need to include RE/GE themes and sectors in sectoral and thematic assessments, specially at the national level.

Availability and access to assessments have already been mentioned. Figure 3.10 confirms that all assessments uploaded in

the Virtual Library and then reviewed have been made available on-line in PDF format if not already available before the EE-AoA process. However since statistics publications, sets of indicators, strategies and national programmes were not reviewed, open and specially on-line access to them is still an issue in CA countries.

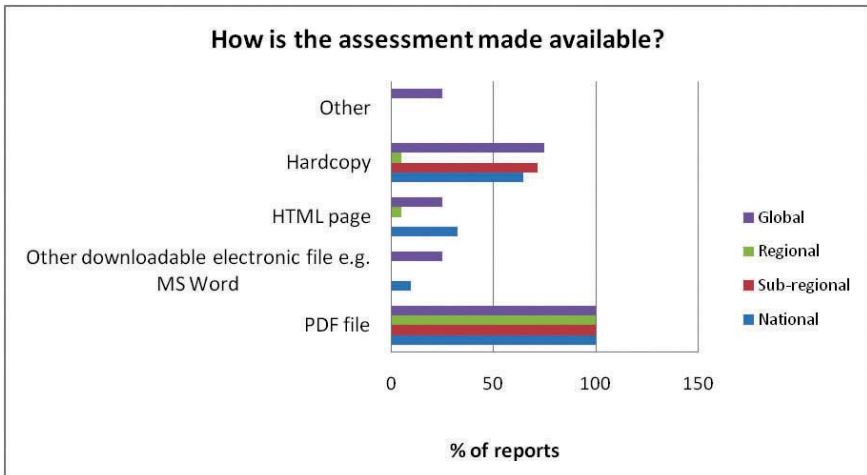


Figure 3.10. Sources of availability of RE/GE assessments

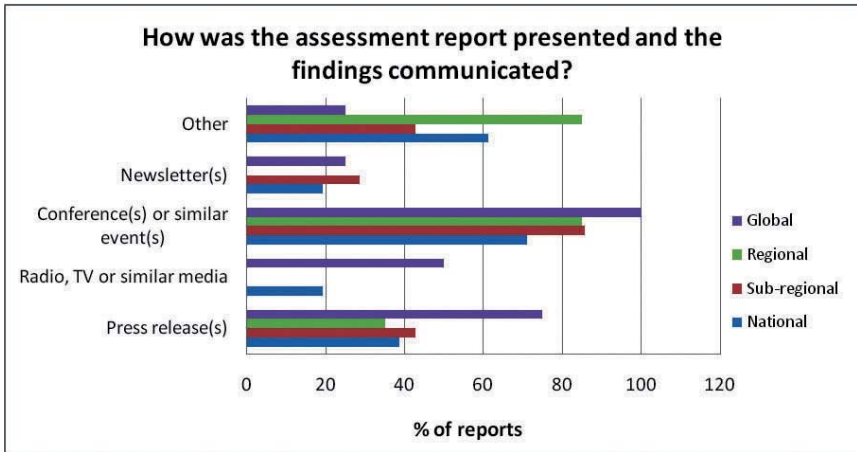


Figure 3.11. Communication of RE/GE assessments

It is important to make a wider range of stakeholders and general public aware and informed about RE/GE assessments. Figure 3.11 shows that most RE/GE assessments were presented through conferences and similar events, then press-releases and newsletters. At a lower level assessments were communicated by radio and TV. Sub-regional and regional assessments were not communicated through radio or TV at all. The web-sites of the organisations in charge of the development of assessments are used mainly to ensure access to assessments in the Other category of Figure 3.10. Access through the internet would be a welcomed way to communicate assessments, specially global and regional ones. The web-resources of the developers of national and sub-regional reports are well used for communicating assessments. Social networks such as Facebook and Twitter are used by a number of international and regional organisations to communicate important messages. They could also be used for further communication of existing and future RE/GE assessments.

3.5 Conclusions

There are as yet no Green Economy / Growth (GE/G) strategies in CA countries. Existing Sustainable Development strategies and concepts of transition to SD in CA countries are too sectoral or narrow in scope to be RE/GE-relevant. There is a need to develop inter-sectoral strategic and policy platforms for Green Economy in each of the CA countries.

The sets of national developmental, environmental and sectoral indicators and statistical compendia need to be revised towards RE/GE and cover relevant sectors of CA economies such as industry, agriculture, mining, energy, construction and housing, transport, social and labour protection.

Ongoing global efforts to mainstream RE/GE and especially Rio+20 in 2012 with its two themes: (a) *a green economy in the context of sustainable development and poverty eradication*; and (b) *the institutional framework for sustainable development*, should create better opportunities to use ODA for the development of RE/GE-relevant national strategies and policies, sets of indicators and statistical compendia as well as piloting and adapting RE/GE practices in CA in the post Rio+20 period.

Although regular use of ODA is not a guarantee of the sustainability of regular SoE assessments and processes, its use for RE/GE mainstreaming is an asset because of the novelty of the concept and the need to overcome knowledge, policy and sectoral barriers. A combination of national and ODA efforts should make national SoERs and sectoral assessments in CA countries more RE/GE-relevant.

Existing SoERs vary from country to country both in terms of quantity and quality, which represents a challenge to compatible and comparative use of them for cooperation between CA countries, and within UNECE and EU-Central Asia cooperative frameworks. Setting up a regular SoER-compatible system with sharing of compatible information, specially with the EU, may serve as a platform for further extended cooperation. EU-ENPI activity on the Shared Environmental Information System (SEIS) could be an example for EU-CA cooperation on sharing information.

The variety of reporting obligations under MEAs may contribute to RE/GE mainstreaming if they integrate RE/GE requirements and if CA countries ensure on-time reporting.

Capacity development and transfer of RE/GE knowledge, specially to the key sectors of CA economies through respective international institutions (UNECE, UNESCAP, FAO, UNIDO, ADB, EBRD, WB) with respective target groups in CA countries, could crucially change the situation for greening the CA economies.

The business sector and civil society in CA countries are not deeply involved in RE/GE activities. The basis for greening the CA economies is to encourage businesses to be green, provide a creative environment and incentives for green jobs and practices, and ensure consumers rights.

Some gaps have been identified. Easy online access to environmental information, including SoERs and environmental indicators and statistics for the general public, is required in CA countries.

Targeted awareness-raising among governmental officials, experts, the business community and civil society is also needed to address RE/GE mainstreaming needs in CA countries.

This chapter is a product of merging the conclusions of the main Central Asia Assessment of Assessments (CA-AoA) chapters with the results of consultations with members of the Steering Group on



Central Asia
An Assessment of Assessments

4 RECOMMENDATIONS

4 Recommendations

Environmental Assessments (SGEA) and assigned national experts from CA countries. As in the main CA-AoA chapters, it focuses first on the individual CA countries and then on recommendations at a sub-regional level.

The CA-AoA includes overviews of the institutions involved in the assessments and discusses the share and role of Official Development Aid (ODA) in their preparation; their accessibility and availability; the regularity and sustainability of the assessment processes; fulfilment of the reporting obligations of CA countries under UNECE and UN multilateral environmental agreements; the existence of relevant strategies, compendiums, accessible statistics and indicators sets; and analysis of the assessments and relevant processes. The following recommendations focus on addressing the gaps identified at each stage of the AoA for each CA country.

4.1 Kazakhstan

Kazakhstan has established regular national state of environment (SoE) reporting as an obligation under the Aarhus Convention. The Ministry of Environment (MoE), through its subsidiary KazNIEC, uses the Guidance developed by the UNECE Working Group on Environmental Monitoring and Assessment to produce annual SoE reports.

The MoE, through its subsidiary KazHydromet, also produces regular environmental information bulletins, covering the eight territories of Kazakhstan, based on regular environmental and water data obtained through the national monitoring network. Also, mainly through its subsidiaries and

in cooperation with other national authorities, the MoE ensures the preparation of regular reports to UNECE and UN multilateral environmental agreements.

Kazakhstan has provided national funding for all the above activities within the considered period (2006-2010).

Recommendations:

- Ensure regular annual SoE reporting on the basis of national funding.
- Further improve national SoE reporting to explore opportunities for further integration of relevant recommendations of the Second Environmental Performance Review of Kazakhstan, produced by UNECE in 2008, and pursue cooperation opportunities with EEA and other institutions to establish the Shared Environmental Information System (SEIS).
- Collaborate and consult with EEA and other institutions in the Pan-European region on the practical use of SEIS. Consultations may cover the systematic, methodological and technical compatibility of environmental monitoring, data collection/processing and reporting.
- Explore opportunities for upgrading SoE reports by better use of the drivers, pressure, state, impact and responses (DPSIR) framework. More focus on drivers, pressure and responses, in addition to analyses of state and impact, may provide a better understanding of the impacts of economic activity on the state of the environment.

- Consult with relevant national authorities to explore opportunities for introducing regular national reporting on the state of water resources as a commitment to improving sub-regional cooperation on water resources in CA.
- Consult with relevant national authorities to explore opportunities for introducing regular national green economy/resource efficiency reporting in order to review implementation of the inter-ministerial programme *Zhasyl Damu* (green development).
- Explore the opportunity to upgrade the inter-ministerial status of the *Zhasyl Damu* programme to a national one, which then might be an umbrella for:
 - a. development of resource efficiency/green economy indicators and statistics compendiums for key sectors of the economy;
 - b. carrying out resource efficiency/green economy sectoral reviews.

In the context of national strategies and policies, Kazakhstan, with its concept on transition to sustainable development by 2024, which was accepted in 2006, has provided an example for the other CA countries, and Kyrgyzstan and Tajikistan have developed their own concepts on transition to sustainable development.

At the end of 2010, Kazakhstan's concept on transition to sustainable development was replaced by the inter-ministerial programme *Zhasyl Damu*, and the concept's set of sustainable development indicators will be integrated into this programme.

Kazakhstan provides accessible annual statistics publications on sustainable development and the environment, based on the environmental statistics compendium which integrates indicators of the concept on transition to sustainable development, including water-related indicators. However no resource efficiency/green economy statistics are yet available.

Further recommendations:

- Exploit the opportunity to re-integrate sustainable development indicators from the concept on transition to sustainable development into the inter-ministerial programme *Zhasyl Damu* to enable the development of specific environmental and resource efficiency/green economy indicators, including further elaboration of relevant water indicators.

4.2 Kyrgyzstan

SoE reporting was established as an obligation under the Aarhus Convention, but only two SoE reports were published in the period 2003-2010, with national funding in 2003 and UNEP funding in 2009. The MoE provides regular updates of the on-line SoE national reports on its website.

National reports and communications under the UNECE and UN multilateral environmental agreements are funded by ODA, mainly through UNDP and in some cases UNEP. The UN system and several other international development agencies (ADB, EBRD) have developed several other SoE-type assessments and reports on Kyrgyzstan within the considered period (2006-2010).

The National Statistics Agency (NSA) provides regular environmental statistical yearbooks on-line, and KyrgyzHydromet provides environmental monitoring data, including data on water resources and water quality. However, due to the limited number and uncertainty of the national environmental and sustainable development indicators, including on water and resource efficiency/green economy, the statistics are limited and uncertain.

Of the Millennium Development Goals (MDGs) related to the environment, only access to water and sanitation are regularly tracked and reported in Kyrgyzstan. However national ownership of MDG-related reporting is limited as a result of the ODA

funding and activities carried out by the UN system. MDG statistics are regularly published by the NSA.

There is no existing sustainable-development strategy or policy in Kyrgyzstan and some time will be needed to develop and accept several relevant environment and sustainable development indicators for the next Country Development Strategy.

Recommendations:

- Revive regular publication of annual SoE reports as an obligation under the Aarhus Convention and consider opportunities for regular national funding. Current reliance on ODA results in irregular SoE reporting. The experience of Uzbekistan in funding SoE reports through a National Nature Protection Fund could be followed.
- Further improve national SoE reporting by studying the experience of Uzbekistan in developing indicator-based SoE reporting, which was funded through UNDP.
- Explore opportunities for further integration of relevant recommendations of the Second Environmental Performance Review of Kyrgyzstan, produced by UNECE in 2009, and for cooperation with the EEA and other institutions to establish the Shared Environmental Information System (SEIS).
- Collaborate and consult with the EEA and other institutions in the Pan-European region on the practical use of SEIS. Consultations may cover the systematic, methodological and technical compatibility of environmental monitoring, data collection/processing and reporting.
- Explore opportunities for upgrading SoE reports by better use of the drivers, pressure, state, impact and responses (DPSIR) framework. More focus on drivers, pressure and responses, in addition to analyses of state and impact, may provide a better understanding of the impacts of

economic activity on the state of the environment.

- Consult with relevant national authorities to explore opportunities for introducing regular national reporting on the state of water resources as a commitment to improve sub-regional cooperation on water resources in CA.
- Consult with relevant national authorities to explore opportunities for introducing regular national green economy/resource efficiency reporting.
- Explore the opportunity of extended cooperation with the EEA, OECD, UNECE, UNEP, and UNESCAP for the development of environmental and green economy/resource efficiency indicators, including further elaboration of relevant water indicators.
- While the new country development strategy is under development, explore the opportunity of mainstreaming green economy/resource efficiency, including:
 - a. development of green economy/resource efficiency indicators and statistics compendiums for key sectors of the economy;
 - b. carrying out green economy/resource efficiency sectoral reviews.

4.3 Tajikistan

There is as yet no system of SoE reporting in Tajikistan despite the country being a party to the Aarhus Convention. Only one SoE-type environmental information bulletin has been published, in 2007, with Organization for Security and Co-operation in Europe (OSCE) support.

National reports and communications to the UNECE and UN multilateral environmental agreements are made with UNDP and, in some cases, UNEP support. The UN system and several other international development agencies (ADB, WB, EBRD) have developed several other SoE-type

and thematic water, climate change, and land management assessments and reports within the considered period (2006–2010). There is a strong dependence on ODA for producing environmental assessments and reports, including water resource and green economy/resource efficiency related topics.

Of the Millennium Development Goals (MDGs) relating to the environment, only access to water and sanitation are regularly tracked and reported in Tajikistan, with UNDP in charge of MDG reporting. There are no on-line and freely accessible national environmental statistics or TajikHydromet environment and water monitoring data.

Tajikistan has a limited number of environmental indicators. UNECE developed a set of water indicators for the country in 2008.

In the context of national SD strategies and policies, the concept on transition to sustainable development by 2030 was developed with the assistance of UNEP. However the Concept include few environment or green economy/resource efficiency indicators.

Recommendations:

- Establish a system and process for SoE reporting as recommended in the First Environmental Performance Review (EPR) produced by UNECE in 2004, and in the ongoing Second EPR for fulfilment of obligations under the Aarhus Convention.
- Study the experience of Uzbekistan in developing indicator-based SoE reporting, as funded through UNDP.
- While establishing SoE reporting, explore the opportunity, in cooperation with the EEA, of making better use of the drivers, pressure, state, impact and responses (DPSIR) framework. More focus on drivers, pressure and responses, in addition to analyses of state and impact, may provide a better understanding of the impacts of economic activity on the state of the environment.
- Explore opportunities for mobilising resources from both ODA and national funds for financial support of the SoE reporting system and process.
- Explore opportunities for cooperation with the EEA and other institutions to establish the Shared Environmental Information System (SEIS).
- Collaborate and consult with EEA and other institutions in the Pan-European region on the practical use of SEIS. Consultations may cover the systematic, methodological and technical compatibility of environmental monitoring, data collection/processing and reporting.
- Consult with relevant national authorities to explore opportunities for introducing regular national reporting on the state of water resources as a commitment to improve sub-regional cooperation on water resources in CA.
- Consult with relevant national authorities to explore opportunities for introducing regular national green economy/resource efficiency reporting.
- Explore the opportunity of extended cooperation with the EEA, OECD, UNECE, UNEP, and UNESCAP for development of environmental and green economy/resource efficiency indicators, including further elaboration of relevant water indicators.
- While the Concept on transition to sustainable development and the National Development Strategy by 2015 are being implemented, explore the opportunity of mainstreaming green economy/resource efficiency, including:
 - a. developing green economy/resource efficiency indicators and statistical compendiums for key sectors of the economy and ensuring their free on-line access;
 - b. introducing regular national integrated reporting on green economy/resource efficiency and poverty reduction;

c. carrying out green economy /resource efficiency sectoral reviews.

4.4 Turkmenistan

Only one SoE-type national environmental report has been published, in 2008 with the assistance of UNEP.

National reports and communications to the UNECE and UN multilateral environmental agreements are made with UNDP and UNEP support. The UN system and several other international development agencies (ADB, WB, EBRD) have developed SoE-type and thematic water sector reviews, and climate change and land management assessments and reports within the considered period (2006-2010).

The First EPR for Turkmenistan is currently under development and its production might provide recommendations relevant to SoE reporting and environmental management.

Apart from overall macroeconomic and MDG indicators for Turkmenistan, there are no on-line and freely accessible national environmental statistics and environmental and water monitoring data and no information on specifically developed environmental indicators, including water and green economy/resource efficiency indicators.

In the context of national strategies and policies for Turkmenistan, there is no adopted National Sustainable Development Strategy (NSDS), however the concept of NSDS exists and was developed in cooperation with the UNEP Regional Resource Centre for Asia-Pacific (UNEP RRC AP) in 2005-2007.

Recommendations:

- Establish a system and process of SoE reporting to fulfil obligations under the Aarhus Convention.
- Study the experience of Uzbekistan in developing indicator-based SoE reporting, as funded through UNDP.
- While establishing SoE reporting, explore the opportunity, in cooperation with EEA, of making better use of the drivers, pressure, state, impact and responses (DPSIR) framework. More focus on drivers, pressure and responses, in addition to analyses of state and impact, may provide a better understanding of the impacts of economic activity on the state of the environment.
- Explore opportunities for mobilising resources from both ODA and national funds for financial support of the SoE reporting system and process.
- Explore opportunities for cooperation with the EEA and other institutions to establish the Shared Environmental Information System (SEIS).
- Collaborate and consult with the EEA and other institutions in the Pan-European region on the practical use of SEIS. Consultations may cover the systematic, methodological and technical compatibility of environmental monitoring, data collection/processing and reporting.
- Consult with relevant national authorities to explore opportunities for introducing regular national reporting on the state of water resources as a commitment to improve sub-regional cooperation on water resources in CA.
- Consult with relevant national authorities to explore opportunities for introducing regular national green economy/resource efficiency reporting.
- Explore the opportunity of extended cooperation with the EEA, OECD, UNECE, UNEP, and UNESCAP for development of environmental and green economy/resource efficiency indicators, including further elaboration of relevant water indicators.
- Explore the opportunity of mainstreaming green economy/resource efficiency, including:
 - a. developing green economy/

- resource efficiency indicators and statistics compendiums for key sectors of the economy and ensuring their free on-line access;
- b. introducing regular national reporting on green economy/resource efficiency;
- c. carrying out green economy/resource efficiency sectoral reviews.

4.5 Uzbekistan

Although Uzbekistan is not a party to the Aarhus Convention there is a system for SoE reporting, carried out under national legislation and relevant resolutions of the Government.

There is an interesting combination of ODA and national funding for SoE reporting through the National Nature Protection Fund. UNDP has funded the production of an indicator-based SoE assessment, elaborated on the basis of the EEA/UNECE/UNEP set of indicators for EECCA countries³³. It analyses the past and provides dynamic and trend indicators on climate change, atmospheric pollution, agriculture, wastes, environment and health, and water. The indicators are provided by the Ministry of Environment.

The SoE reports are published, with on-line access, but these reports are not annual.

National reports and communications to the UNECE and UN multilateral environmental agreements are funded by ODA, mainly through UNDP and, in some cases, UNEP. The UN system and several other international development agencies (ADB, EBRD, WB) have developed several other SoE-type assessments and sectoral reports on agriculture, water resources and renewable energy within considered period (2006-2010).

There was a Second EPR in Uzbekistan in 2010. Of the Millennium Development

³³ <http://www.unece.org/env/documents/2003/cep/ac.10/cep.ac.10.2003.6.e.pdf>

Goals (MDGs) relating to the environment, only access to water and sanitation are regularly tracked and reported in Uzbekistan, with UNDP in charge of MDG reporting.

UzHydromet provides some water and environment data, accessible on-line. The National Statistics Agency (NSA) produces regular environmental statistical yearbooks but these are not freely accessible.

Uzbekistan formulated its national sustainable development strategy in 1997. It comprises economic and social development and ecological principles but has no measurable goals and targets.

Recommendations:

- Ensure the regularity of SoE reporting and consider opportunities for their regular national funding.
- Explore opportunities for sharing positive experiences in developing indicator-based SoE reporting with other CA countries.
- Explore opportunities for further integration of relevant recommendations of the Second Environmental Performance Review, produced by UNECE in 2010, and for cooperation with the EEA and other institutions to establish the Shared Environmental Information System (SEIS).
- Collaborate and consult with EEA and other institutions in the Pan-European region on the practical use of SEIS. Consultations may cover the systematic, methodological and technical compatibility of environmental monitoring, data collection/processing and reporting.
- Explore opportunities to upgrade the SoE reports by making better use of the drivers, pressure, state, impact and responses (DPSIR) framework. More focus on drivers, pressure and responses, in addition to analyses of state and impact, may provide a better understanding of the impacts of

economic activity on the state of the environment.

- Consult with relevant national authorities to explore opportunities for introducing regular national reporting on the state of water resources as a commitment to improve sub-regional cooperation on water resources in CA.
- Consult with relevant national authorities to explore opportunities for introducing regular national green economy/resource efficiency reporting.
- Explore the opportunity of extended cooperation with the EEA, OECD, UNECE, UNEP, and UNESCAP for development of environmental and green economy/resource efficiency indicators, including further elaboration of relevant water indicators.
- Explore the opportunity of mainstreaming green economy/resource efficiency, including:
 - a. developing green economy/resource efficiency indicators and statistics compendiums for key sectors of the economy and ensuring their free on-line access;
 - b. introducing regular national reporting on green economy/resource efficiency;
 - c. carrying out green economy/resource efficiency sectoral reviews.

initiating water resource reporting in CA countries and for collaborating with donors to develop resource efficient and ecosystem-based water resource indicators for each CA country, with the aim of achieving sustainability in the Aral Sea Basin.

Another sub-regional institution, the Central Asia Regional Economic Cooperation (CAREC) programme, is mandated to communicate the Pan-European Environment for Europe (EfE) green economy/resource efficiency and environmental governance initiatives in CA. In the light of the positive experience in cooperation with the EEA, UNECE and UNECE conventions and other key EfE members and stakeholders, CAREC might be instrumental in facilitating post-Astana EE-AoA follow-up activities in CA countries, including possible SEIS-oriented cooperation.

4.6 Sub-regional cooperation

Sub-regional environment and water cooperation in CA is ensured through international development agencies and sub-regional organisations, such as IFAS with its executive committee (EC IFAS) and IFAS water and environment technical bodies (ICWC, ICSD). These have developed a series of water and environment sub-regional assessments in the region.

Because of the importance of water cooperation in CA, it is recommended that EC IFAC should consider opportunities for

Annexes

Annex 2.1. List of institutions involved in water assessments

CAREC	Regional Environmental Centre for Central Asia
Gov	National Governments
MoE Kz	Ministry of Environment Protection of Kazakhstan
KazNIIIEC	Scientific Research Institute of the Environment and Climate under the MoEKz
MEA	Multilateral Environmental Agreements
MoE Kg	State Agency for the Environment Protection and Forestry under the Government of the Kyrgyz Republic
MoE Tj	State Agency for Environment Protection of Tajikistan
MoE Trm	Ministry of Nature Protection of Turkmenistan
MoE Uz	State Committee of Nature Protection of Uzbekistan
MoAgr Kz	Ministry of Agriculture of Kazakhstan
MoAgr&W Kg	Ministry of Agriculture, Water Resources and Processing Industry of Kyrgyzstan
MoAgr&E Tj	Committee of Agriculture and Environmental Protection of Tajikistan
MoAgr&Water Uz	Ministry of Agriculture and Water Resources of Uzbekistan
MoEcon Tj	Ministry of Economic Development and Trade of Tajikistan
MoWR Tj	Ministry of Melioration and Water Resources of Tajikistan
NCCD Kg	National Centre to Combat Desertification of the Kyrgyz Republic
NCCD Trm	National Coordination Centre on Decertification in Turkmenistan
NGC	National Geological Centre
NHS Kz	National Hydromet Service of Kazakhstan
NHS Uz	Centre of Hydrometeorological Service under the Cabinet of Ministers of Uzbekistan
NHS Tj	Hydrometeorology Committee for environmental protection under the Government of the Republic of Tajikistan
SCLM Tj	State Committee for land management of the Republic of Tajikistan
SIWI	Stockholm International Water Institute
Stat Kz	Agency of Statistics of the Republic of Kazakhstan
Stat Kg	Agency of Statistics of the Republic of Kyrgyzstan
Stat Tj	Agency of Statistics of the Republic of Tajikistan
Stat Trm	Agency of Statistics of Turkmenistan
Stat Uz	Agency of Statistics of the Republic of Uzbekistan
SWC Kz	State Committee of Water Resources of Kazakhstan
SWC Uz	State Committee of Water Resources of Uzbekistan
RRC ROAP UNEP	Regional Resource Centre for Asia and Pacific
UN	United Nations
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme

Annex 3.1. List of institutions involved in RE/GE assessments

Gov	National Government
KazNIIIEC	Scientific Research Institute of the Environment and Climate under the MoE Kz
MDGs	Millennium Development Goals
MoE Kz	Ministry of Environment Protection of Kazakhstan
MoE Kg	State Agency for the Environment Protection and Forestry under the Government of the Kyrgyz Republic
MoE Tj	State Agency for Environment Protection of Takistan
MoE Trm	Ministry of Nature Protection of Turkmenistan
MoE Uz	State Committee of Nature Protection of Uzbekistan
MoAgr Kz	Ministry of Agriculture of Kazakhstan
MoAgr&W Kg	Ministry of Agriculture, Water Resources and Processing Industry of Kyrgyzstan
MoAgr&E Tj	Committee of Agriculture and Environmental Protection of Tajikistan
MoAgr&Water Uz	Ministry of Agriculture and Water Resources of Uzbekistan
MoEcon Tj	Ministry of Economic Development and Trade of Tajikistan
MoWR Tj	Ministry of Melioration and Water Resources of Tajikistan
NCCD Kg	National Centre to Combat Desertification of the Kyrgyz Republic
NCCD Trm	National Coordination Centre on Decertification in Turkmenistan
NGC	National Geological Service
NHS Kz	National Hydromet Service of Kazakhstan
NHS Uz	Centre of Hydrometeorological Service under the Cabinet of Ministers of Uzbekistan
NHS Tj	Hydrometeorology Committee for environmental protection under the Government of the Republic of Tajikistan
NSA	National Statistic Agency
NESDCA	Network of Experts for Sustainable Development of Central Asia
SCLM Tj	State Committee for land management of the Republic of Tajikistan
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme

Annex 3.2. Sub-regional, regional RE/GE assessments covering CA

№№	Title of the assessment	Institution	Geographical coverage	Publication year
1	2	3	4	5
Sub-regional assessments				
1	Use of Renewable Energy Sources in Central Asia. Perspectives and Capacity Building needs	UN-ESCO	CA	2010
2	Water and Energy Resources in Central Asia: Utilization and Development Issues	EADB	CA	2008
3	Land degradation in Central Asia	ADB	CA	2008
4	Central Asia: ATLAS of natural Resources	ADB	CA	2010
5	Assessment Reports on Emerging Environmental Issues in Central Asia	ISDC IFAS	CA	2006
6	Appraisal reports on priority ecological problems in Central Asia	ISDC IFAS	CA	2006
7	Sub-regional Integrated Environment Assessment: Central Asia	UNEP RRC	CA	2007
Regional assessments				
1	Synthesis Report on the status of implementation of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (1998 Aarhus Convention).	UNECE	Europe, EECCA, Balkans, Russia	2008
2	Review of Implementation of the Espoo Convention. The 1991 Convention on Environmental Impact Assessment in a Transboundary Context.	UNECE	Europe, EECCA, Balkans, Russia	2008
3	Fifth report on the implementation of the Convention (2008 - 2009). Convention on the Transboundary Effects of Industrial Accidents.	UNECE	Europe, EECCA, Balkans, Russia	2010
4	Hemispheric transport of air pollution 2007.	UNECE	Europe, EECCA, Balkans, Russia	2007
5	Draft 2010 review of strategy and policies for air pollution abatement.	UNECE	Europe, EECCA, Balkans, Russia	2010
6	The forest sector in the green economy. A background paper by the secretariat for the UNECE/FAO Policy Forum, October 2009.	UNECE	Europe, EECCA, Balkans, Russia	2009

1	2	3	4	5
7	European forest sector outlook study. UNECE and FAO Main Report. Geneva timber and forest study paper, 2005	UNECE	Europe, EECCA, Balkans, Russia	2005
8	The Millennium Development Goals. The Way Ahead. A Pan - European Perspective	UNECE	Europe, EECCA, Balkans, Russia	2006
9	State of Europe's forests 2007. The MCPFE report on sustainable forest management in Europe	UNECE	Europe, EECCA, Balkans, Russia	2007
10	The Transport, Health and Environment: Trends and Developments in the UNECE – WHO European Region (1997 – 2007)	UNECE	Europe, EECCA, Balkans, Russia	2008
11	The Pan-European Programme on Transport, Health and Environment: Assessment and Progress made.	UNECE	Europe, EECCA, Balkans, Russia	2008
12	Financing energy efficiency investments for Climate Change mitigation: Regional analysis of policy reforms to promote energy efficiency and renewable energy investments	UNECE	Europe, EE, CA, Balkans, Russia	2010
13	Addressing sustainable consumption, production and transportation through education for sustainable development: analysis of good practices	UNECE	Europe, EECCA, Balkans, Russia	2009
14	Transport, mining, chemicals, and waste management, and sustainable consumption and production patterns: achievements, trends and challenges	UNECE	Europe, EECCA, Balkans, Russia	2009
15	Green Homes. Towards energy-efficient housing in the United Nations Economic Commission for Europe region	UNECE	Europe, EECCA, Balkans, Russia	2009
16	From Intentions to Actions: Overcoming Bottlenecks. Critical Issues in Implementation of Environmental Policies	UNECE	EECCA, South-Eastern Europe	2007
17	Mainstreaming environmental programmes into public budgets.	OECD	EECCA	2010

1	2	3	4	5
18	Survey on medium-term expenditure frameworks and the environment in the countries of Eastern Europe, Caucasus and Central Asia.	UNEP, EEA	EECCA, South-Eastern Europe	2007
19	Sustainable Consumption and Production in South East Europe and Eastern Europe, Caucasus and Central Asia	EC for Europe	Europe, EE, CA, Balkans, Russia	2010
20	Regional analysis of policy reforms to promote energy investments Integrating Environment into Agriculture and Forestry Progress and Prospects in Eastern Europe and Central Asia	WB	EE, CA	2007
Global assessments				
1	Financing Global Climate Change Mitigation. UNECE energy series No. 37, 2010	UNECE	Global	2010
2	Global Biodiversity Outlook 3	CBD Secretariat	Global	2010
3	Global Environment Outlook 4 (GEO-4)	UNEP	Global	2007
4	Green Economy Report	UNEP	Global	2011

References

Chapter 1 Introduction

- Development Co-operation Instrument (DCI), http://ec.europa.eu/europeaid/how/finance/dci_en.htm
- Europe's Environment: An Assessment of Assessments, EEA, 2011
- Europe's Environment Assessment of assessment, EEA web portal <http://aoa.ew.eea.europa.eu>
- European Union and Central Asia: Strategy for a New Partnership, Council of the European Union, 2007
- Green Economy Initiative, UNEP, <http://www.unep.org/greeneconomy>
- Guide to the Europe's Environmental Assessment of Assessments EE-AoA 2011, EEA, 2010
- Steering Group on Environmental Assessments, <http://www.unece.org/env/efe/Astana/SGEA.html>

Chapter 2 Water and related ecosystems

- Central Asia: ATLAS of Natural Resources, ADB, 2010
- Concept of transition of Kazakhstan to Sustainable Development for 2007-2024, 2006
- Concept of transition of Kyrgyz Republic to Sustainable Development for 2009-2035, 2009
- Concept of transition of the Republic of Tajikistan to Sustainable Development, 2007
- Environmental Profile of Uzbekistan (based on indicators), State Committee of Nature Protection of Uzbekistan, 2008
- Environmental indicators for Uzbekistan, State Committee of Nature Protection of Uzbekistan, 2007
- First National Millennium Development Goals Report for Uzbekistan, 2006
- Guide to the Europe's Environmental Assessment of Assessments EE-AoA 2011, EEA, 2010
- Guidelines on use of environmental indicators, 2005
- Millennium Development Goals in Kazakhstan Report, 2010
- Millennium Development Goals Tajikistan Progress Report, 2010
- Quarterly statistical publication 'Statistical Review of Uzbekistan'
- Sectoral programme «Zhasyl damu for 2010-2014», 2010, № 924
- Statistics on Resource Flows to Developing Countries, OECD, 2011
- Statistical compendium 'Environmental protection and sustainable development of Kazakhstan', Agency of Statistics of the Republic of Kazakhstan, 2010
- Statistical compendium «Kyrgyzstan», Agency of Statistics of the Republic of Kyrgyzstan

- Statistical yearbook of Kyrgyz Republic 2005-2009, Agency of Statistics of the Republic of Kyrgyzstan, 2010
- Statistical yearbook of Tajikistan, Agency of Statistics of the Republic of Tajikistan, 2010
- Strategic plan of Ministry of environmental protection of the Republic of Kazakhstan for 2011 – 2015
- Statistical compendium «Environmental protection in Tajikistan», Agency of Statistics of the Republic of Tajikistan, 2010
- Statistical Review of Uzbekistan for 2007, Agency of Statistics of the Republic of Uzbekistan, 2008
- The second periodic progress report on the Millennium development goals in the Kyrgyz Republic, 2009

Chapter 3 Green economy/ Resource efficiency

- Astana «Green Bridge» Initiative: Europe-Asia-Pacific Partnership for the Implementation of «Green Growth», UN ESCAP, 2010
- Appraisal reports on priority ecological problems in Central Asia, 2006, UNEP RRC
- Central Asia: ATLAS of Natural Resources, ADB, 2010
- Concept of transition of Kazakhstan to Sustainable Development for 2007-2024, 2006
- Concept of transition of Kyrgyz Republic to Sustainable Development for 2009-2035, 2009
- Concept of transition of the Republic of Tajikistan to Sustainable Development, 2007
- Environmental Profile of Uzbekistan (based on indicators), State Committee of Nature Protection of Uzbekistan, 2008
- Environmental indicators for Uzbekistan, State Committee of Nature Protection of Uzbekistan, 2007
- Financing an inclusive and green future. A supportive Financial System for Achieving the Millennium Development Goals in Asia and the Pacific, 2010
- First National Millennium Development Goals Report for Uzbekistan, 2006
- Green Growth, Resources and Resilience Environmental sustainability in Asia and the Pacific, UNESCAP, 2010
- Guide to the Europe’s Environmental Assessment of Assessments EE-AoA 2011, EEa, 2010
- Guidelines on use of environmental indicators, 2005
- Land degradation in Central Asia, CACILM, 2008
- Millennium Development Goals in Kazakhstan Report, 2010
- Millennium Development Goals Tajikistan Progress Report, 2010
- Quarterly statistical publication ‘Statistical Review of Uzbekistan’
- Outcomes of the Multistakeholder day at Sixth Asian-Pacific Ministerial Conference on Environment and Development (MCED-6), 2010
- Sectoral programme «Zhasyl damu for 2010-2014», 2010, № 924
- Statistics on Resource Flows to Developing Countries, OECD, 2011

-
- Statistical compendium 'Environmental protection and sustainable development of Kazakhstan', Agency of Statistics of the Republic of Kazakhstan, 2010
 - Statistical compendium «Kyrgyzstan», Agency of Statistics of the Republic of Kyrgyzstan
 - Statistical yearbook of Kyrgyz Republic 2005-2009, Agency of Statistics of the Republic of Kyrgyzstan, 2010
 - Statistical yearbook of Tajikistan, Agency of Statistics of the Republic of Tajikistan, 2010
 - Strategic plan of Ministry of environmental protection of the Republic of Kazakhstan for 2011 – 2015
 - Statistical compendium «Environmental protection in Tajikistan», Agency of Statistics of the Republic of Tajikistan, 2010
 - Statistical Review of Uzbekistan for 2007, Agency of Statistics of the Republic of Uzbekistan, 2008
 - The second periodic progress report on the Millennium development goals in the Kyrgyz Republic, 2009
 - Toward a Green Economy: Pathways to Sustainable Development and Poverty Eradication, UNEP, 2011



