

Setting Priorities for Environmental Actions: The World Bank Experience in Using the Country Environmental Analysis Tool

The World Bank



The WBG's Mission: The “Twin Goals”



GOAL 1: End extreme poverty

The percentage of people living with less than \$1.25 a day to fall to no more than 3 percent *globally* by 2030



GOAL 2: Promote shared prosperity

Foster income/consumption growth of the bottom 40 percent of the population in *every country*



Sustainability, an overarching theme

A sustainable path of development and poverty reduction would be one that: i) manages the resources of our planet for future generations, (ii) ensures social inclusion, and (iii) adopts fiscally responsible policies that limit future debt burden



THE WORLD BANK



Three pillars to reduce poverty and boost shared prosperity in Europe and Central Asia (ECA) region

Poverty and Shared Prosperity



The WBG's Advantage

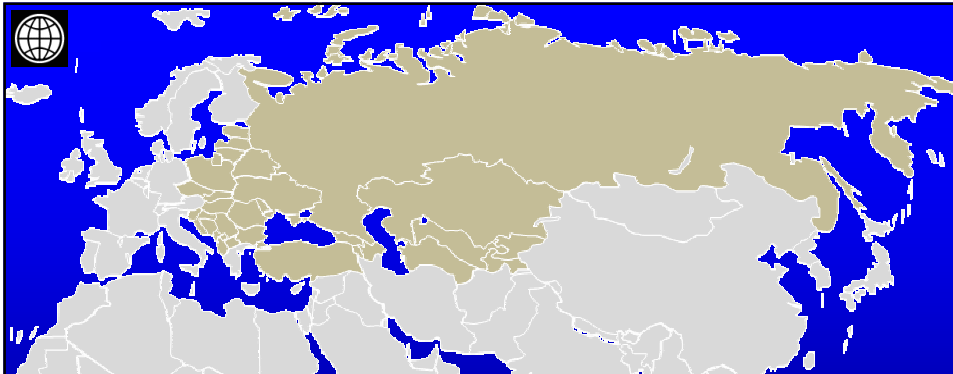
- ◆ **Unique** in its global knowledge and skills
- ◆ **Advice** backed by substantial **financing**
- ◆ **Ability to mobilize investment** from many sources
- ◆ **Helps open new markets** through joint ventures and information sharing
- ◆ **Credibility** to act as **honest broker**
- ◆ **Global connector** and **disseminator** (often through **partnership** with other organizations including EU)



The WBG's Tools

- ◆ Analytical and advisory activities, e.g., country-level and sectoral studies including country environmental analysis and strategic environmental assessments, advisory services, which can directly support EU acceding countries in strategic planning and preparation of planning documents.
- ◆ Lending and technical assistance (TA) projects, additional to and co-financing of EU funds.
- ◆ Training and other knowledge and capacity enhancement programs, complementary to EU programs.

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Supporting Environment and Climate Action in Europe and Central Asia

Highlights of the World Bank Program

February 2014

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Promoting low-emission development

Low-emissions / Green Growth

- Transition to a Low Emission Economy in **Poland**
- **Macedonia's** Green Growth and Climate Change Analytic and Advisory Support Program (incl. adaptation)
- Climate change Reimbursable Advisory Services in **Romania** (on-going)
- **Uzbekistan** Vision 2030 Strategy (on-going)
- Green Economy Concept in **Kazakhstan** (on-going)

Sustainable Forest/Land Mgmt

- 21 active operations in **17 countries** boost potential for carbon sequestration and productivity; higher income for rural communities; and job creation in the value chain
- **Russia** Forest Fire Response Project (\$40 mln)
- Forest Law Enforcement and Governance II Program (€9 mln) active in **Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, Russia**
- Sustainable land management practices support green growth agenda

Getting Ready for Carbon Markets

- Activities in 10+ countries, from EU-10 to Central Asia, including:
 - World-first JI transaction: **Latvia** (waste mg't)
 - Carbon Finance for Land regeneration (**Albania**) and soil conservation (**Moldova**)
 - Green Investment Schemes in **Czech Republic and Poland**
 - PMR assistance in **Kazakhstan, Turkey, and Ukraine**.

Sustainable Energy

- **\$3.1 bln** or 83% of energy lending approved over FY11-13 supports mitigation (EE/RE), 90% in pipeline (FY14-15) + a strong IFC program
- Engagement in policy dialogue: EE policy and measures, RE framework, tariff/FSF reforms
- Market transformation and leveraging through credit lines and funds
- Tackling gas flaring with GGFR
- Analytical work on energy efficiency, energy subsidies, social dimensions of energy

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Integrating Adaptation in Development

Disaster Management and Resilience

- **Albania** Disaster Risk Mitigation and Adaptation Project (\$9.16 mln): emergency response, hydromet strengthening, building codes
- **Poland** Odra River Basin Flood Protection (\$184 mln)
- Catastrophe Risk Insurance Facility to develop catastrophe and weather-risk insurance markets in **Western Balkans and Caucasus** region

Climate-smart Agriculture

- **Looking Beyond the Horizon:** Cutting-edge study on Climate-resilient Agriculture in **Albania, Macedonia, Moldova, and Uzbekistan** (expanding to **South Caucasus**)
- Informed country strategies and operations, incl. **Moldova** Disaster Risk operation, **Albania** Water Resources Management and Irrigation (\$40 mln), **Uzbekistan** irrigation (\$220 mln) and horticulture (\$150 mln) projects, GEF **Uzbekistan** Sustainable Agriculture and Climate Mitigation Project (\$12.7 mln)

Innovative Finance for Resilience

- PPCR program in **Tajikistan** (\$48 mln) in partnership with ADB and EBRD for investments in:
 - key water management and hydroelectric infrastructure,
 - institutional capacities for effective integration of climate resilience into national development and investment planning,
 - land management for resilience of rural communities

Hydromet Services

- **Russia** (2005-13)
 - accurate and faster for forecasts through modern technical base and strengthened institutions
 - seminal project, successor just signed
- **Central Asia** (since 2011) – **Regional, TJ, KG**
 - platform for countries to discuss and agree on solutions
 - shift towards user-oriented service mindset

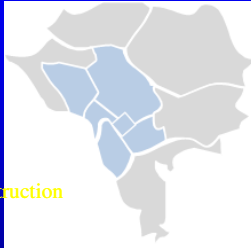
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Environment and Climate Activities in Western Balkans

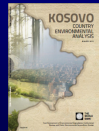
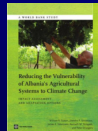
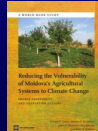
Sustainable Energy: EE/RE

- Policy and regulatory frameworks
- Building institutional capacity
- Financing models/mechanisms
- Diversification and regional connectivity for resilience
- At least 1 project per country



Waste Management

- **Albania:** Regional landfill construction
- **BiH:** Improving solid waste management services
- **Montenegro:** Solid waste collection and disposal in coastal areas
- **Kosovo:** Remediation of environmental legacies of lignite power production



Sustainable Agri- Forest- Land

- **Albania:** Natural resources management, integrated water resource management
- **BiH:** Sustainable forest and landscape Management
- **Serbia:** Drainage and flood control
- **Regional:** NERETVA/TREBISNJICA RIVER BASIN (GEF)

Disaster Risk Management

- **Regional:** Catastrophe Risk Insurance Facility (CRIF)
- **Albania:** DRM and Adaptation



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Country Environmental Analysis (CEA)

- A country-level environmental analytic tool identified by the World Bank Environment Strategy (2001) for priority selection and, institutional and capacity assessment for addressing priorities.
- Most CEAs include detailed analysis of specific themes, though approach varies.
- It can be directly useful to EU acceding countries in their environmental priority setting, a basis for preparing planning documents.

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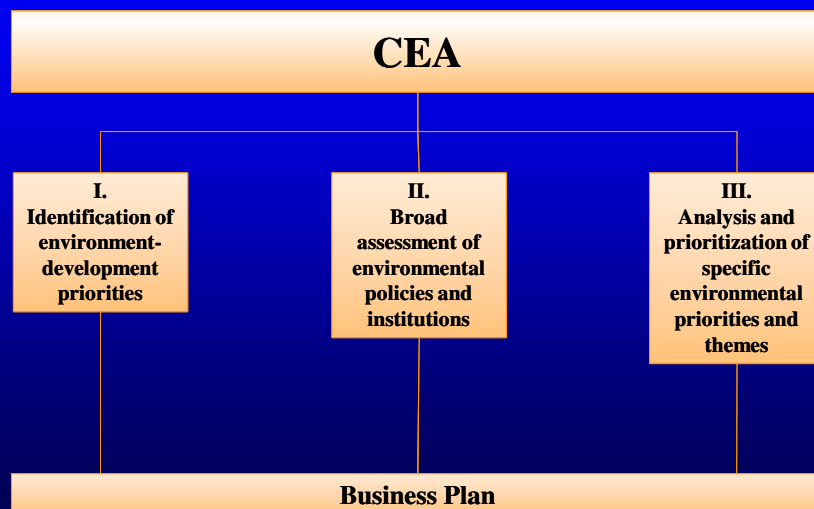
CEAs

- Quite a number of CEAs have been done for WB client countries.
- The applications of CEAs in the World Bank aim to identify and integrate environmental considerations into its Country Assistance Strategies (CAS), Poverty Reduction Strategy Papers (PRSP), and other development assistance strategies and programs at country level
- To provide analytical underpinnings for the design of Development Policy Lending (DPL) as required by the Bank's Operational Policy 8.60 regarding the preparation of DPLs
- Tool for long term engagement with partner countries on environment-development issues.
- Country ownership of CEA process is critical for success

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CEA Building Blocks



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Importance of the 3 Analytic Building Blocks

- ◆ Assessment of environmental priorities linked with sustainable growth and poverty reduction (helps track issues over time, assess how well institutions are addressing those issues over time)
- ◆ Broad analysis of environmental institutions and organizations (historical evolution, assessment of stakeholders, political economy issues, institutional strengths & weaknesses, sub-national level, cross sectoral coordination, etc.)
- ◆ Detailed analysis of specific themes and priorities (allows more detailed analysis, selection can be linked to specific focus areas of planning documents required for EU approximation process such as DSIPs)

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Key issues for meeting stated objectives of CEA

- ◆ **Several factors important:** (e. g. quality of analytic work, process of preparation, ownership from country counterparts, timing)
- ◆ **Some analytic tools have been particularly useful:** (e g. quantification of costs of environmental degradation, net savings analysis, broad as well as sector specific institutional analysis, EIA analysis, public environmental expenditure reviews, etc.)
- ◆ **Important to follow up beyond report** – In good practice cases, CEA has been used as tool for long term engagement with partner countries on environment development issues

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CEA toolkits

- ◆ The CEA toolkits are resource libraries online
- ◆ Guide the user on CEA concepts and methods and provide concrete CEA examples

Webpage: <http://www.worldbank.org/ceatoolkit>

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CEA Toolkit

<http://www.worldbank.org/ceatoolkit>

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Country Environmental Analysis (CEA) Toolkit

CEA Toolkit

The CEA Toolkit is a guidance toolkit for preparation of Country Environmental Analysis (CEA) — a country-level environmental analytic tool that aims to integrate environmental issues into Country Assistance Strategies, Poverty Reduction Strategy Papers, Development Policy Lending operations, and other development assistance strategies and programs.

The toolkit aims to support the preparation and development of CEAs by providing Regional task teams with practical resources such as:

1. Completed CEA reports;
2. Information regarding methodologies used in CEAs; and
3. Lessons learnt from ongoing CEAs.

The overall aim of the CEA toolkit is to facilitate learning on regional experiences with CEAs, within the Bank and between development partners, and improve the quality and operational relevance of CEAs.

Management

The CEA Toolkit is managed by staff at the Pollution Management and Governance Team, Environment Department, World Bank. For information regarding materials posted on the toolkit, or to share materials to help keep the toolkit updated, please contact Helena Naber (hhaber@worldbank.org) or Kazi Fatima Ahmed (kahmed1@worldbank.org).

Funding

The Environment Department is grateful to the *Trust Fund for Environmentally and Socially Sustainable Development* and *Trust Fund For Country Environmental Analysis* for ongoing support for the CEA toolkit.

CEA 5-Year Review Paper

- ▶ [Lessons Learned Paper on CEA Pilots \(304KB PDF\)](#)

CEA Toolkit Materials

- ▶ [Facts about CEA](#)
- ▶ [CEA Concept Note \(216KB PDF\)](#)
- ▶ [Methodological Guidance on CEA](#)
- ▶ [CEA Inventory Table \(123KB PDF\)](#)
- ▶ [Completed CEA Reports](#)
- ▶ [Training Workshops on CEA](#)
- ▶ [Related Publications](#)

Donor Coordination

- ▶ [Collaboration with Partners on CEA](#)

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Kosovo Country Environmental Analysis

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Objectives

- To assign a monetary value to damages resulting from environmental degradation for one specific year
- To allow comparison between various environmental categories (air, water, solid waste, forest/land) and provide a tool for prioritization
- To give stakeholders a tool to discuss the importance of environmental protection in economic terms, useful in comparison with other economic indicators and decide on how to allocate scarce resources as well as increase awareness about the “costs of doing nothing”
- To raise awareness about environmental damages and their costs

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Methodology

- Environmental degradation costs are measured in terms of health impacts (early mortality, morbidity, i.e. sickness); impacts on property values, economic losses of forests degradation;
- Costs estimates are ranges rather than precise figures;
- Pollution data mostly based on Kosovo Environmental Protection Agency and Hydro-meteorological Institute (data based on 2010)
- Analysis uses international epidemiological research on the relationship between population exposed to environmental pollution and the increased risks of health impact

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Summary of Estimated Costs of Environmental Degradation in Kosovo, 2010

Annual costs	In millions of euro			In percent of 2010 GDP		
	low	mid	high	low	mid	high
Outdoor air	37.5	97.6	162.8	0.90	2.33	3.88
Lead	41.7	67.9	94.0	1.00	1.62	2.24
Solid waste	19.0	25.1	31.3	0.45	0.60	0.75
Forests	16.7	18.1	19.5	0.40	0.43	0.46
Water, sanitation	8.0	11.3	14.6	0.19	0.27	0.35
Heavy metals	0.4	2.8	5.2	0.01	0.07	0.12
Total	123.3	222.9	327.5	2.9	5.3	7.8

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Air - Ambient Air Quality and Valuation Methods

PM ranges from 35 ug/m³- 80 ug/m³ in suburban Pristina and 42 ug/m³ – 130 ug/m³ in central Pristina

Limit value according to EC Directive 2008/50/EC on ambient air quality and cleaner air in Europe, May 21 2008= 40 ug/m³

Five steps to quantify the monetary effects of air pollution through impacts on health and quality of life:

1. Monitoring data on air pollutants;
2. Exposure of the population;
3. Health impacts due to exposure based on epidemiological data;
4. Physical health impacts (mortality, morbidity);
5. Monetary effects of the health impacts.

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Air- Health Impacts of Air Pollution Epidemiological relation between air pollution and health impact

Health issues from air pollution	Units	Impacts per 1 ug/m ³	Cases per year	DALYs /10,000 cases	Total DALYs
Premature mortality (PM _{2.5})	% change in cardiopulmonary and lung cancer mortality	0.8	830	80,000	6,500
Chronic bronchitis (PM ₁₀)	per 100,000 adults	0.9	310	22,000	680
Hospital admissions (PM ₁₀)	per 100,000 population	1.2	600	160	10
Emergency room visits (PM ₁₀)	per 100,000 population	23.5	11,500	45	50
Restricted activity days (PM ₁₀)	per 100,000 adults	5,750	2.0 mln	3	610
Lower respiratory illness in children (PM ₁₀)	per 100,000 children	169	23,500	65	155
Respiratory symptoms (PM ₁₀)	per 100,000 adults	18,300	6.5 mln	0.75	485

Disability Adjusted Life Year (DALY) = a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. Total DALYs=21,200 per year

Costs of mortality through human capital approach and value of statistical life. Costs of illness and treatment through estimates of costs of (i) Hospitalization; (ii) doctor visits; (iii) emergency visits; (iv) value of lost work days; and (v) value of lost caregiver time.

Cost of outdoor air pollution in urban areas has the highest impact with estimated damage costs ranging from €37 million to €158 million per year (0.89-3.76 percent of GDP).

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Economic Costs of Air pollution

- Highest costs of environmental degradation in Kosovo, ranges from €37 to €163 million per year
- Key public health effects of particulate matter are respiratory diseases and cardiovascular effects, lung cancer
- Determine health effects of exposure based on epidemiological scientific research of exposure-response function (mortality and morbidity of PM₁₀ and PM_{2.5})
- Monetary effects of health impacts (costs of mortality and costs of treating illnesses and time lost)
- Key sources of air pollution:
 - Industries such as KEK, Ferronikeli, Sharrcem, Trepca, district heating companies
 - decentralized burning of lignite and wood for household heating and traffic (Pristina)
 - waste burning
- Analysis based on available air quality monitoring data of outdoor air quality levels, no source attribution to specific sources of pollution

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Lead - Impact of lead on health

Lead-related health concerns in Kosovo are associated with:

- Lead emissions to air and water by lead and zinc mines and lead-processing facilities, in particular former lead smelters, where emissions have spread over areas several kilometers.
- Release of lead to air by vehicles fueled by leaded gasoline. This exposure is likely higher in urban areas.

Lead impairs neuropsychological functioning in children (IQ measurements) and tends to accumulate in organs and in blood. Assessment is based on results of a study carried out by the World Health Organization in 2004 .

Annual costs of IQ loss in children due to lead exposure

Category\estimate	Low	Mid	High
Lifetime income loss per lost IQ point (% of income)	1.67	1.67	1.67
Cost per IQ point (for working population, €)	2,365	2,365	2,365
Labor force participation (future, %)	48.1	48.1	48.1
IQ points lost per year	36,686	59,670	82,654
Cost of lost IQ points (€/year)	41,739,061	67,888,835	94,038,608
Cost of lost IQ points (% of GDP)	1.00	1.62	2.24

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Water - Surface water quality of main river basins

River Basin	Drini i Bardhë	Ibri	Lepeneci	Morava e Binçës	Water quality classification	
Monitoring stations	24	17	6	5		
Sanitary-biological water quality						
BOD ₅ – highest registered value (mg/l)	6.74 (2007)	19.8 (2007)	15.67 (2007)	appx. 6 (2007)	Pristine rivers	< 1 mg/l
	7.22 (2008)	18.43 (2008)	11.97 (2008)	appx. 5 (2008)	Moderately polluted	2-8 mg/l
	7.22 (2009)	15.1 (2009)	6.8 (2009)	appx. 5 (2009)	Municipal sewage *	20 mg/l
Dissolved Oxygen- lowest registered value (mg/l)	6.6 (2007)	4.2 (2007)	6.1 (2007)	5.8 (2007)	No aerobic aquatic life	0-0.2 mg/l
	5.8 (2008)	2.2 (2008)	6.0 (2008)	6.0 (2008)	Problematic for aerobic aquatic life	0.2-6 mg/l
	5.7 (2009)	1.8 (2009)	7.0 (2009)	7.0 (2009)		
Highest heavy metal pollution of priority substances in mg/l **						
Cadmium	0.01	0.02	0.01	0.01	0.00045-0.0015 maximum allowable concentration depending on water hardness classes	
Lead	0.1	0.1	0.07	0.07	0.0072 annual average	
Nickel	0.9	0.2	0.2	0.2	0.02 annual average	

Source: KEPA (2010) and 2008/105/EC

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Water: Measuring Health Impacts and Costs

Mortality and morbidity estimates are based on:

1. Indication of under-five mortality to be caused by diarrhea
2. average duration of diarrhea
3. information on how many cases of diarrhea could be avoided (in case of clean water)
4. indication of level to which diarrhea effects overall health
5. age pyramid

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Water pollution- inadequate water supply, sanitation and hygiene

- Mainly from bacteriological contamination.
- Contamination of drinking water more bacteriological than chemical (especially in water supply systems of small cities and rural areas, with principal challenges being waste water and fecal contamination); *Institute of Public Health* monitors quality of drinking water.
- Total health costs related to inadequate water supply, sanitation and hygiene (and heavy metal water pollution) ranges from €8.4 -19.8 million per year (or 0.20 – 0.47% of GDP in 2010), dominated by costs of morbidity due to diarrhea as most monitored water pollution is from bacteriological sources.

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Solid Waste

- No proper waste management system for any type, whether household, industrial, and (bio-)hazardous waste.
- No measured data for solid waste generation in Kosovo.
- Waste is, almost exclusively, dumped in (illegal) dumpsites or burnt.
 - This practice will lead to high levels of pollution of the groundwater and air through emissions of methane (landfill gas), dioxins, and Particulate Matter (when burnt).
- Economic damages from improper solid waste systems stem from
 - emissions to air from regulated landfills, illegal dumps and backyard burning;
 - discharges of pollutants in leachate to soil, groundwater, and surface water; and
 - impact of waste dumping on property values.

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Waste – Economic impact of uncontrolled waste and coal ash release

- **Total damages** range from €19 to €31 million per year, where
- The annual cost of **effects of illegal dumpsites on property prices** is €12 million- €13 million.
- €5.2 million–€9.5 million (0.12–0.23 percent of Kosovo's GDP in 2010) attributable to **PM and dioxins air pollution**.
- The annual economic damage linked to **leachate** is estimated at €34,000–€319,000 a year.
- **Coal ash damage** is assessed based on assumption that coal ash could replace primary construction materials like cement and sand. With 1.16 million tons of coal ash, annual damage of ash dumping is estimated at €2 million–€8.7 million.

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Forests/Nature - Impact of Forest Degradation

The main environmental problem linked with forestry in Kosovo is the ecological degradation of forests: (i) illegal logging of best (part) of the trees; (ii) stealing of technical wood (firewood)

Economic valuation approach:

- assess the value of forests that are in good ecological condition
- assess the value of ecological degraded forests
- assess the annual area of forests that shifts from good ecological condition to degraded

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Value of Forests (Euro per ha) depending on ecological condition

Estimate		Low		High	
		----- Ecological condition -----			
Category		Good	Degraded	Good	Degraded
Direct use values					
Timber		342	114	342	114
Firewood		1,026	821	1,026	821
Nonwood forest products		1,838	1,470	1,838	1,470
Hunting		25	0	25	0
Recreation		123	0	123	0
Indirect use values					
Plant nutrients, agricultural productivity, and water management		613	490	613	490
Carbon sequestration		1,356	1,084	2,711	2,169
Option, bequest, and existence values		245	0	245	0
Total		5,566	3,980	6,922	5,064

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General Policy Recommendations

- Enhance effectiveness of environmental standards (especially air pollution).
- Increase reliance on economic instruments (fines and charges), also to increase the private sector's share of environmental expenditures and increase environmental investments , following the "polluter pays principle".
- For the "Heavy Investment Directives" (waste, water/wastewater), prepare strategic master plans to link EC Directives with domestic legislation, define/prepare required investments over longer term horizon, including operational and maintenance costs and utility tariffs taking into account affordability constraints
- For environmental legacy issues, prepare detailed feasibility studies and clean-up plans.
- Improve quality of Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMPs), particularly for large and complex infrastructure investments and increase public input during consultations
- Increase environmental awareness, following Aarhus convention to publicly disclose environmental information

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Sector Recommendations

Measures to control air pollution

Energy Sector (power plants main source of dust, SO₂ and NO_x emissions)

- Government strategy for new power plant and close Kosovo A by 2017, abatement investments would cost in range of € 100 million
- Additional Government Strategy interventions (rehabilitate Kosovo B; further address legacy issues; energy efficiency; maximize use of alternative energy)

Other Industries (less significant, though still substantial)

- Abatement measures for SO₂ and NO_x could be considered

Transport/traffic (key pollution factor in cities)

- (Imported) car adjustments in line with EU Directives, modifying petrol stations
- Non-technical measures – ring roads, traffic circulation management; car-free zones, bike-lanes etc
- Cleaner fuels
- Car inspections

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Sector Recommendations

Measures to control air pollution (Continued)

Domestic fuel consumption (firewood/lignite heating/cooking, significant in cities)

- Natural gas network
- Small-scale initiatives, cooking/heating devices

Lead emissions (from lead smelter areas, leaded fuels)

- Cleanup programs in Mitrovica area; education program for exposure minimization
- Enforcement of phasing out leaded gasoline

Energy efficiency measures

- World Bank funded program under development for Energy Efficiency and Renewable Energy Project
- UNDP program on establishment of energy efficiency database

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Sector Recommendations

WATER POLLUTION

Sanitation and Wastewater Treatment (domestic wastewater management)

- Increase wastewater collection from 50 to 90% would cost in range of € 424 million
- Increase of piped drinking water connection from 60 to 90% would cost some € 210 million

Industries Wastewater Treatment

- Biological treatment of industrial wastewater included in above figures
- Management of heavy metals discharges from (former) Trepca operations is part of overall remediation schemes, estimated at around € 40 million.

Policy Recommendation for Water Sector

- Develop 10-year strategic master plan for water supply, sanitation and wastewater treatment including a management plan for main river basins, which focus on utility development, long-term financial sustainability and attracting donor support

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Sector Recommendations

WASTE MANAGEMENT

Domestic Waste Management

- Increase collection service levels from 41 to 90% would cost in range of € 50-100 million
- Tariffs (€3-4/month/household) could suffice but are poorly collected

Industries Waste Management

- Site Cleanup operations, KEK € 15 million (ongoing), Trepca € 40 million (need)

Policy Recommendation for Waste Sector

- Develop 10-15-year strategic master plan for waste management including hazardous waste, which focus on utility development, phased investment needs, long-term financial sustainability in view of high operating costs and attracting donor support

FORESTRY

Policy Recommendation for Forestry

- Develop 10-15-year strategic master plan to protect forestry against illegal logging and prepare for low investment measures (natural regeneration, increasing revenues from timber production, biomass and firewood generation, establish regular forest inventories)

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Beyond the Cost Estimation of Environmental Degradation and Countermeasures

In addition to CEAs, the WBG has conducted macro-level environmental and economic modeling work in a number of countries (e.g., Poland, Macedonia, and Romania) to assist the governments in building a solid analytical base for impact assessments and decision making at macro-economic level.

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Recent Example of Advisory Services: Climate Change and Low Carbon Program in Romania

The program aims to assist the Romanian government in operationalizing Romania's national climate change strategy and action plan, identifying and integrating climate-related actions in new operational programs, building a solid analytical base for impact assessments and climate-related decision making, and enhancing climate-friendly practices such as carbon trading and monitoring systems. It contains the following four components:

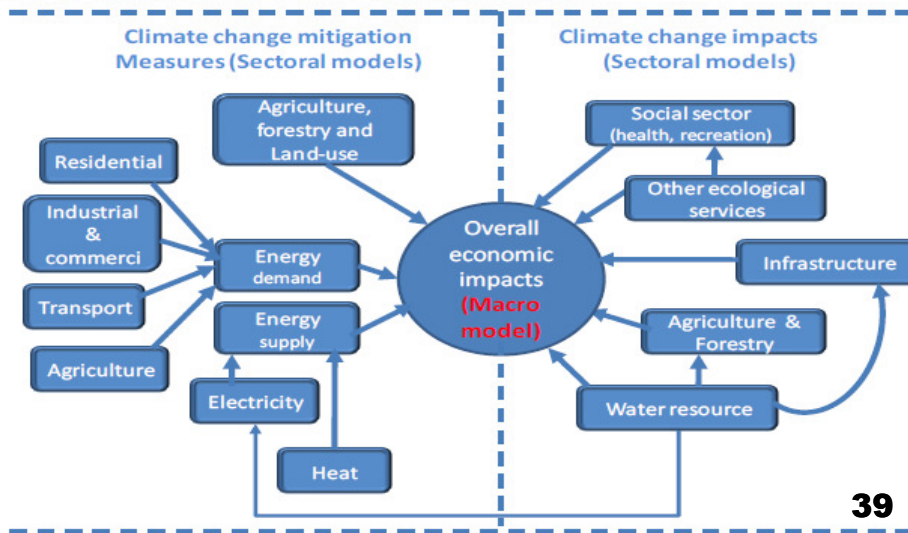
- A. Comprehensive national strategy and action plan.
- B. Sectoral assessment and recommendations for the 2014-2020 Operational Programs.
- C. Sectoral and macro-economic analysis and modeling for impact assessment and decision making.
- D. Carbon trading and monitoring, reporting and verification as well as knowledge sharing.

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Romania: Climate Change and Low Carbon Green Growth Program

MODELING: A FRAMEWORK



Thank you!

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