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Georgia Environmental and Climate Change Policy Brief¹

Draft 2009-01-22

This Environment and Climate Change Policy Brief aims to summarise the key environmental problems and opportunities for Georgia, related to poverty reduction and economic development and the Swedish government's thematic priority Environment and Climate which includes four focus areas; (i) climate change adaptation, (ii) energy, (iii) environment and security, and (iv) water.

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1. Introduction

After the break-up of the Soviet Union, Georgia emerged as a fractured nation and experienced a turbulent decade marked by civil strife (severely damaging the economy and displacing people), widespread corruption, popular distrust of state institutions, and high levels of poverty and inequality. The 'shadow economy', which was substantial also during the Soviet period, remained high. After the peaceful 'Rose Revolution' in 2003, Georgia is pursuing ambitious political and economic reforms and has made substantial progress. The GDP growth was a high 10% in 2006 and 12% in 2007² and the collection of tax revenues has increased considerably since 2003. Furthermore, Georgia has achieved the largest reduction of

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² CIA World Factbook, Georgia.

corruption among transition countries, moving up from rank 124 in 2003 (CPI score 1.8) to country rank 67 (CPI score 3.9) in 2008.³ However, the negative Adjusted Net Saving (-2.2% of GNI in 2008), indicates that the development is unsustainable.⁴

Georgia is classified as a ‘partly free’⁵ lower middle-income country and despite the economic growth overall poverty has remained high. The HDI was 0.754 in 2005 (ranked 96 of 177 countries).⁶ The income inequality is unusually high for a transition country, with the Gini coefficient hovering around 0.45.⁷ The unemployment rate reached 13.8% in 2005. The capital city of Tbilisi has grown quickly and currently inhibits 1.5 million people, approximately one third of the total population. On a national level, however, the population growth is negative with high emigration rates (in 2002, 20% of the population had emigrated due to poverty and conflicts⁸) followed by loss of human resources. In 2007, there were an estimated 220,000-240,000 internally displaced persons (IDPs), mainly from Abkhazia and South Ossetia, mostly based in Tbilisi. The most recent conflict (with Russia, cease-fire in August 2008) added an additional 60,000 IDPs, from the two enclaves and the buffer zones around them, housed in tents in Gori and elsewhere.⁹

2. Key Environmental Problems, their Causes and opportunities

2.1 Key environmental problems and their causes

Georgia is a mountainous country with rich biodiversity and varying climate and precipitation. Almost the entire infrastructure, industrial and agricultural lands are located in the lowlands. About half of the area is farmland, constituting mostly of hay land and pastures due to the mountainous structure. Arable land often requires land reclamation measures. The key environmental problems (not in order of priority and described further below) in Georgia include pollution to air and water, land degradation, forest degradation and loss of biodiversity, affecting the provision of ecosystem services negatively.¹⁰

Air pollution has always been the environmentally most sensitive issue in Georgia. The most industrialised cities (Tbilisi, Kutaisi, and Rustavi) ranked at the top of the list of most polluted cities of the former Soviet Union. The main source of air pollution is traffic (large number of vehicles, obsolescent car park, and low quality of fuel) followed by industrial (metallurgical, chemical and construction) and energy sectors.

Water availability and pollution: Although water is abundant in Georgia, it is unevenly distributed geographically. Almost 80% of the fresh water is found in the western part of the country, while a majority of industrial facilities, irrigated land, and population is situated in

³ Transparency International Corruption Perception Index,

⁴ Adjusted Net Savings, (also known as genuine savings) is a proxy sustainability indicator building on the concepts on green national accounts. Adjusted Net Savings measure the true rate of savings in an economy after taking into account investments in human capital, depletion of natural resources and damage caused by pollution. A negative adjusted net savings can be interpreted as an indicator of non-sustainability as it implies that the value of depletion of natural resources and cumulative pollution exceeds the national investment in produced and human capital.

⁵ Freedom House <http://www.freedomhouse.org/template.cfm?page=47&nit=402&year=2006>

⁶ Human Development Report 2007/2008.

⁷ Statistics of Georgia. <http://www.demogr.mpg.de/cgi-bin/databases/cdb/cdb.php?vi=203&ci=11&di=2&id=0>

⁸ Georgia National Assessment Report, ‘Rio 10+’, 2002.

⁹ The Economist, 25th September 2008.

¹⁰ If nothing else is stated, the source used for this section is “State of the Environment”, 1996.

the eastern part. This can cause diluting problems, which - in combination with failing infrastructure for water supply, sewage, and wastewater treatment – can pollute watercourses and affect human health. Many of the rivers, especially Mtkvari and Rioni, are heavily polluted, affecting water quality nationally as well as in downstream countries. Coliform levels in reservoirs and water supply systems have reached dangerous levels in many areas. The quality of drinking water often does not comply with human health and safety standards. The major sources of water pollution are domestic, industrial and agricultural activity, including inadequate waste management practices. In 1996, only 13% of domestic and industrial sewage was treated prior to discharge. Also the *Black Sea* is heavily polluted by uncontrolled sewage, agricultural runoff, oil spills and dumping of wastes. The entire ecosystem of the Black Sea has begun to collapse, and the wetlands (including Ramsar sites) are heavily affected.

Land degradation: Soil erosion, desertification (mainly in east Georgia) and salinisation (most common in east Georgia) are growing problems. Water and wind erosion, environmentally degrading agricultural practices and other anthropogenic (e.g. uncontrolled logging) and natural processes has led to an almost 35% degradation of farmland. Given the scarcity of arable land, soil erosion remains one of the greatest problems.¹¹ There is no systematic monitoring of industrial pollution of soils. There is however, an increase in the use of chemical substances (fertilizers, pesticides, herbicides, etc) which may affect the soil quality. Bad waste management practices, including insanitary landfills (official and illegal dumping sites) cause constant pollution of soil, water and air.

Forest degradation:¹² Forests, which cover almost 40% of the land area, are mainly located in mountainous areas and large parts are severely degraded. The intensive deforestation since the late 1990's is unprecedented in the history of Georgia. Unsustainable forestry practices are affecting the diversity, quality and productivity of the forests. Deforestation is mainly due to an almost complete reduction of timber import from Russia. Besides, a sharp reduction of fuel import has been compensated by illegal logging by the population. Degraded forests have drastically decreased protective functions (protection of soils, storage of waters, regulation of waters, sanitary-hygienic functions, etc) and self-recovery ability. Landslides and avalanches are becoming more frequent. Deforestation exerts a negative influence on the entire ecological state in Georgia.

Loss of ecosystem services and biodiversity: The Caucasus is one of the most biologically rich areas on earth and is ranked among the planet's 25 most diverse and endangered hotspots by Conservation International. The bulk of biodiversity is found in the forests, freshwater habitats, marine and coastal ecosystems and high mountain habitats; these are also where the threats are the greatest.¹³ The *conflicts* (which have led to i.a. sabotage of infrastructure, increased poaching, and increased concentration of domestic livestock in mountainous areas), in combination with widespread poverty and unsustainable management of natural resources, bad spatial planning, heavy pollution, and weak enforcement of legislation, have affected biodiversity as well as the ability of the ecosystems to provide necessary services, such as flood control, water purification and climate regulation. Current examples of affected ecosystem services are deteriorating fish stocks, closing of beaches, landslides, and decreased

¹¹ Georgia National Assessment Report, 'Rio 10+', 2002.

¹² Georgia National Assessment Report, Rio 10+, 2002.

¹³ WWF, 2006.

ability of the ecosystems to withstand diseases and shocks, purify water and regulate water runoff and climate.

Climate change and natural disasters. Georgia has been particularly vulnerable to natural disasters, such as the 2002 earthquake, periodic droughts, and the severe flood in 2005.¹⁴ Climate change is expected to increase the frequency and magnitude of natural disasters such as flood and droughts. Climate change is described in further detail in section 4.

2.2 Opportunities

Georgia has a rich and diverse vegetation, favourable climate and fertile land. If the environment and natural resources were managed sustainably, there would be opportunities for increased tourism (high potential in creation of niche markets i.a. eco-tourism, winter sports, and cultural tourism), agriculture including pasture and forestry.¹⁵ Georgia has also a potential in the clean development mechanism under the Kyoto protocol. Furthermore, Georgia has a quite large potential for renewable energy, especially micro hydropower and wind power, but also sun, geothermal and biomass sources provide a potential.¹⁶

3. Effects of the environmental problems

3.1 Impact on poverty (vulnerability, security, opportunity)

Vulnerability:¹⁷ Despite the economic growth, poverty levels and income inequality remain high and total employment declined during early 2000s. Overall poverty is affecting more than half of the population, while extreme poverty incidence increased to 17.4% in 2004 (up from 15.1% in 2002). Rural poverty has seen an increase vis-à-vis urban poverty. There are wide regional differences in living standards. Tbilisi fares better than other regions, while the highest overall incidence of poverty is in secondary cities. Also non-income poverty indicators have shown little improvement.

Labour market status, assets ownership and household composition are key determinants of poverty in Georgia according to the World Bank Group. Factors affecting poverty include: (un)employment, age, education-level, and remittances.¹⁸ IDPs face particularly difficulties in entering the labour market. It can also be assumed that gender is a determining factor of poverty.

Land is an important source of income, and agricultural production constitutes a third of household incomes. Production is mainly for local consumption. The main part of poor households' resources is spent on food. Many households rely on state transfers and private assistance (remittances). Poverty reduction is closely linked with agricultural production growth, and diversified income generation.

¹⁴ IDA/IFC, 2005.

¹⁵ IDA/IFC, 2005

¹⁶ TI, May 2008.

¹⁷ IDA/IFC, 2005; and Georgia EDPRP, 2003.

¹⁸ Families with unemployed members; rural families with no land or small lots of land and with few or no cattle; families with three or more children or a larger share of elderly; households with a low educated or disabled head of household; single parent families with children; and single pensioners, are more likely to be poor. (IDA/IFC, 2005).

Degradation of land and forests causes soil erosion and negatively affects agricultural productivity and livelihood opportunities in rural areas. Low agricultural productivity may increase the need for food imports and thereby the vulnerability to raises in international food market prices. Furthermore, the *poor are more vulnerable* to pollution, bad service delivery and deteriorating infrastructure, land slides and natural disasters, due to that the poor often have small opportunities to choose area of settlement, are more dependent on natural resources (such as land or fuel wood), have fewer coping strategies and less resilience due to inadequate nutrition, education and other resources.

Security: Poverty and conflicts are affecting the environment in various ways, e.g. through increased logging and poaching, changing migration routes for domestic animals; all causing loss of biodiversity, overgrazing and soil erosion. IDPs are separated from their natural habitats and sources of food and livelihoods; massive displacement of people put additional stress on infrastructure, service delivery, and state transfers. Conflicts, therefore, contribute to food insecurity and poverty. Lack of tenure security is also a problem and may be important for returning IDPs.

Opportunity: Georgia is rich in natural resources and non-ferrous minerals, has fertile soils, rich biodiversity and attractive nature. The low income levels and small population suggests that export markets will have to drive economic growth. Currently, however, exports remain limited and non-diversified. Georgia has a comparative advantage for agro-processing and export oriented wood processing if a sustainable land and forestry regime can be developed. Furthermore, agriculture is a sector that has shown employment generating capacity and is thus pro-poor.

Tourism is another sector with potential, but this requires political stability, service provision, and a healthy environment with retained biodiversity. Furthermore, Georgia is a transit country, strategically located between Europe and Asia, where opportunities as a transit country are being explored.

3.2 Impacts on Economic development

Georgia has had relatively high rates of economic growth the last 8 years.¹⁹ How the most recent conflict has affected the economy is not yet clear; however, some officials say GDP growth will fall from 10% to 5% while others expect it to be near-zero. Yet reconstruction work and foreign aid may well boost the economy during 2009.²⁰ Identified key growth sectors include transport and communication, energy, industry, agriculture, and tourism. Economic activity is centred to Tbilisi. The informal economy remains significant, approximately 1/3 of total output. Georgia has suffered from chronic inability to collect tax revenues; however progress is made and *tax revenues continue to increase* (from 14% of GDP to nearly 20% between 2004 and 2006).²¹ The large emigrated population provide private remittances, the same volume as state transfers and equivalent to more than 25% of exports during 2000-2004. Remittances play a significant role in the economy and for household's income.

¹⁹ On average the GDP growth was 6% per year between 2000 and 2005 (IDA/IFC, 2005), 10% in 2006 and an estimated 12% in 2007 (CIA World Factbook).

²⁰ The Economist, 25th September 2008.

²¹ EU CSP, 2007-2013.

There are *important environment linkages to several of the key sectors* for economic development in Georgia. The government gives e.g. priority to construction of pipelines and railroads to develop its role as a transit point for gas, oil and other goods, followed by environmental risks for oil spills and gas leakages. Increased road **transport** will increase emissions of air pollutants and greenhouse gases. Furthermore, if **industrial** activities, which declined during the 1990s, recover there is an obvious risk of increasing pollution to air, water, and land.

The poor state of infrastructure, especially **energy** supply, continues to have a broad detrimental impact on the economy and public welfare. The cost of energy has been identified as the third major obstacle to SME business development (following political instability and unstable regulation). In Georgia, the energy cost per unit of product produced is three times higher than in Western Europe, where countries have pursued strict energy efficiency and energy savings policies since the 1973 oil crisis. A majority of the energy consumed in Georgia is imported. As a main part of the national budget revenues comes from sales of imported as well as domestically produced energy in the form of taxes, incentives to implement energy efficiency measures might not be in place at the moment.²²

Key growth sectors have not shown significant employment-generating capacity. The bulk of job creation has been in self-employment, primarily agriculture and small-scale trading and services, where wages remain low and fluctuate by season. **Agriculture** remains the largest sector of the Georgian economy and accounts for 52% of employment, although its contribution to GDP has dropped from 30% in 1996 to 16% to 2004.²³ Intensified use of Georgia's **forests** has raised important environmental challenges, including maintenance of soil and water conservation objectives and adequate protection of the regions globally significant biodiversity.²⁴ Former kolkhoz-owned forests are in a particularly bad state. Focus has been given on property rights and privatisation of land, although progress has been slow and property rights are not properly ensured and protected.²⁵ Improved long-term agricultural (including forestry) productivity and increased export earnings, *will require sustainable management of natural resources and clear property rights.* The WB-group suggests that Georgia would need to attract more Foreign Direct Investments (FDI) into export-oriented agro-processing sectors.²⁶ This would, in turn, require improved governance, low corruption and stable regulations.

During the Soviet period, Georgia was visited by up to 4 million **tourists** annually. The tourism industry declined sharply from 1990, mainly because of the conflicts. Although a great potential, growth of the tourism industry will be severely restricted by bad air and water quality, inadequate sanitary conditions, collapsing ecosystem of the Black Sea, closing of beaches, and diminishing fish stocks.

In sum, continued environmental degradation will pose challenges to economic growth, increased export, as well as poverty reduction targets and attainment of the MDGs. And vice versa; a short term focus on economic growth without adequate attention to environmental concerns will pose additional stress on the environment and negatively affect the possibilities of increased earnings and long term, environmentally sustainable growth.

²² TI, April 2008.

²³ IDA/IFC, 2005.

²⁴ World Bank, Conservation of Forest Ecosystems, Project Brief.

²⁵ Georgia EDPRP, 2003

²⁶ IDA/IFC, 2005.

3.3 Impacts on Public Health

Georgia identifies health as one of the most important components of human capital. However, the human health conditions in Georgia is alarming, according to Georgia's Economic Development and Poverty Reduction Program (EDPRP). Mortality caused by cardiovascular diseases has increased by 35% since 1990; the frequency of tuberculosis is increasing among children and adults; diseases that were considered eradicated, such as malaria, have increased - and is likely to increase further with climate change. The incidences of HIV/AIDS are still low.²⁷ *Access to good nutrition, water supply and sanitation, and low levels of pollution are vital determinants for good health.*

About 82% of the population has access to improved water sources (67% of rural, 96% of urban population) and 94% of the total population has access to improved sanitation. However, only 30% of the area is cleaned from waste; waste services are only provided in the big cities and municipal centres, and do not cover villages and small towns. The municipal infrastructure, such as the systems for waste management, sewage and wastewater treatment, is deteriorating due to inadequate management and maintenance, and under-investments, with negative health impacts on especially the poor and IDPs. As can be seen in the table below the (urban) population in Georgia is also highly affected by outdoor air pollution. After the reduction of fuel import and increased use of fuel wood, the indoor air pollution is also likely worsening.

WHO estimates	Water Sanitation & Hygiene		Indoor air pollution		Outdoor air pollution	
	Country	Diarrhoea deaths/year	Diarrhoea DALYs/1000 capita per year	Deaths/year	DALYs/1000 capita per year	Deaths/year
Armenia	<100	1	100	0.8	1 600	4
Azerbaijan	800	3.9	1 800	7.2	1 400	1.4
Georgia	--	0.3	100	0.6	2 200	3
Turkey	6 000	3	2 500	0.9	18 800	2

Source: WHO, 2007(data from 2002)

4. Climate Change

4.1 Current Climate and Hazards

Despite its small size the climate of Georgia is very varied from west to east with annual temperatures on the Black Sea coast of 14-15C and precipitation that ranges from 1500-2500mm, whereas on the plains in Eastern Georgia annual temperatures are 11-13C and precipitation is only 400-600mm/year²⁸

Floods and drought are the major climatological hazards in the country. Floods are reported as killing more people, but drought affects far more people and causes greater economic damages, for example a large drought in 2000 affected 700,000 people and caused damages of 5.6% of GDP due to its effects on agriculture and on hydro-power generation²⁹

²⁷ Georgia EDPRP, 2003.

²⁸ National Climate Research Centre (1999)

²⁹ World Bank, 2006

4.2 Trends and Projections

Trends reported in the National Communication show that average temperatures in Tblisi increased by 0.7C over the last century and by 0.5C in Eastern Georgia but that there was a slight cooling in Western Georgia. Precipitation has increased in the lowland areas of Georgia by around 10-15% but has decreased in mountain areas by 15-20%.³⁰ Floods have become more frequent in the west of the country.

Annual temperatures are set to increase by 2.6-5.2C by 2081-2100 (the median response across models is 3.7C), with the greatest increase occurring in summer. The IPCC reports a slight decrease in average annual precipitation, however there is a large spread in results between different models so this should be treated with caution. There is a robust signal for drying in Spring (MAM) and Summer (JJA), which appears to be around 10-15% although there is again a large range in the extent of drying the models are projecting.³¹ The complexity of Georgia's climate means that there are likely to be regional differences in the changes experienced, for example warming is likely to be greatest at higher altitudes, and there are indications that annual precipitation may increase in the west and decrease in the east thus exacerbating regional differences.

Rising temperatures mean that there are likely to be more frequent heatwaves in summer and that there will be fewer extreme cold events in winter. The intensity of precipitation is expected to increase.

4.3 Impacts

Agriculture is a key sector for Georgia, providing income for over a third of Georgian households. Climate change will impact on agriculture in a in a complex way. On the one hand agriculture in Georgia may benefit from a longer growing season due to warmer temperatures, however changes in run-off and evapo-transpiration may cause decreases in yield, for example Parry *et al.* (2004) find that there may be a 5% decrease in cereal yields to 2050³². Rational water management and allocation, as well as strong drought plans, are the key if Georgia is to take advantage of warmer temperatures to increase yields.

The severe drought of 2000 caused wheat yields to decline by 56% compared to 1999, with a severe impact on household food security in affected areas and on the efforts of rural communities to escape from poverty.³³ The combination of glacier melt and earlier snowmelt causing a reduction in summer run-off, higher rates of evapo-transpiration due to increased temperatures and the projected spring and summer decrease in precipitation makes droughts such as that of 2000 more likely to occur.

Georgia is unlikely to face an overall shortage of water, but changes in precipitation may exacerbate the differences between the east and the west (where 75% of water resources are currently found). The water infrastructure is only slowly recovering from neglect in the post-Soviet era, and will require strong investment in order to maintain supply. Earlier snowmelt will increase the risk of spring flooding, and the increase in intensity of rainfall will also increase the likelihood of flash flooding. More frequent droughts will impact on hydropower

³⁰ National Climate Research Centre (1999)

³¹ Christensen *et al.*, 2007

³² Parry *et al.*, 2004

³³ World Bank, 2006

generation, for example the drought of 2000 reduced energy generation by 20% and caused power shortages even in the capital Tblisi.³⁴

Temperature increases will be greater at higher altitudes and are expected to increase pressure on bio-diversity in the Caucasus Mountains, which are a world hotspot of bio-diversity with a high percentage (25%) of endemic species. Species with slow dispersal rates, or that are adapted to niche alpine environments are likely to be most affected³⁵. Climate change will also add to the stresses that Georgia's forests are experiencing. The picture for human health is mixed; there will be a decrease in mortality from extreme cold, but an increase in heat-related health problems, and the incidence of vector-borne diseases such as Malaria may rise. Sea-level rise will be an issue along the Black Sea coast, in particular in central areas where land subsidence is occurring.

4.4 Adaptation

In order to minimise any adverse impacts of climate change, as well taking advantage of potential opportunities such as a longer growing season, Georgia will need to actively pursue adaptation measures. There is currently a low level of integration of climate change issues into Georgia's national and sectoral plans (such as the Economic Development and Poverty Reduction Plan), which is driven by a low general awareness of environmental issues and a lack of appreciation of the linkages between climate change and economic and social development³⁶. Poor groups, and those who are marginalised and lack access to decision-making processes (such as the IDPs) are most vulnerable to the effects of climate change as they have limited adaptive capacity. Particular focus should thus be paid to enabling these groups to adapt.

There are various specific measures that could be taken in Georgia to adapt to climate change, for example the adoption of drought resistant cultivars in agriculture, however the focus at present should be at the institutional level. Building institutional capacity, integrating climate change into national and sectoral planning documents and raising public awareness of climate change as a major issue are important steps towards building the necessary political will and ability to adapt. There is a particular need for improved early warning and response to drought. The implementation of environmental legislation also needs to be improved, as does coordination between local and national decision-makers³⁷. It is to be hoped that the ongoing process of preparing the 2nd National Communication on Climate Change to the UNFCCC³⁸ acts to raise awareness within government, and that its results are reflected in future national plans.

In addition there are many more general issues that are raised elsewhere in this brief, such as addressing land degradation and deforestation, improving the water infrastructure and reducing stresses on biodiversity that would reduce Georgia's vulnerability to climate change. One specific area in need of investment is the network of hydrological and meteorological observing stations, the number of which has declined sharply since 1991³⁹. These are vital for

³⁴ World Bank, 2006

³⁵ UNDP, 2004

³⁶ UNDP, 2004

³⁷ UNDP, 2004

³⁸ National Climate Research Centre, 1999

³⁹ World Bank, 2006

early warning for droughts and floods, as well for long-term monitoring of how climate is changing, and it would be of great benefit to repair and restore the network.

4.5. Mitigation and Energy

For 2006 Georgia had total emissions of 4.61Mt, which equates to 1.04tonnes/capita and compares to emissions of 5.7t/capita for Central and Eastern Europe and 4.28t/capita for the world⁴⁰. Georgia is not bound to any emissions reductions under the current phase of the Kyoto Protocol. There is potential for Georgia to benefit from investment in clean technology under the Clean Development Mechanism (CDM), such as the Landfill Gas Capture and Power Generation project being implemented in Tblisi, which aims to reduce emissions by 72,700 tonnes/CO²/year.⁴¹ This is currently the only CDM project operational in the country, however, compared to five in neighbouring Armenia, suggesting that Georgia could improve its capacity to attract CDM projects.

Hydropower accounts for the majority of Georgia's energy production, however, energy needs to be imported to meet the country's needs.⁴² There is great potential to expand hydropower and set up a strong wind power sector; however, at present the regulatory environment is not conducive to the setting up of renewables (with the exception of small hydropower plants)⁴³. Expanding renewable energy would increase Georgia's energy security without increasing its emissions of carbon dioxide.

5. What are key actors doing to manage the environmental problems?

5.1 National development plans

Georgia's Economic Development and Poverty Reduction Program (EDPRP) was launched in July 2003. The EDPRP's two main goals are (i) rapid and sustainable economic development, and (ii) reduced extreme poverty. The EDPRP is well aligned to the MDGs and its time-span, goals, and objectives are concurrent with MDG targets.⁴⁴ Although a section is dedicated to natural resources and the environment, environment and climate change does not appear to be well integrated in the rest of the EDPRP. There also seems to be a lack of understanding of how environmental degradation and climate change is affecting the economy and the links to poverty. In sum, *environmental protection and climate change must be better integrated* into the growth-sector policies, such as energy, transport, and agriculture. The Georgian government states that Strategic Environment Assessments (SEA) will be introduced at early stages of decision-making on all approved strategies, programmes and plans "that have a potential effect upon the environment".⁴⁵ To what extent this is done, has not been detected.

After the Rose Revolution, the new government asserted its commitment to both implementation of the EDPRP and the Millennium Declaration. In line with the EDPRP the government has established *employment-generating growth* (targeted sectors are tourism, agriculture, and agro-processing), *along with human resource development and protection of*

⁴⁰ IEA, 2008

⁴¹ UNFCCC, 2009

⁴² National Climate Research Centre, 1999

⁴³ TI, May 2008

⁴⁴ IDA/IFC, 2005

⁴⁵ Georgia EDPRP, 2003.

the vulnerable as its key development objectives.⁴⁶ At the same time, and against the backdrop of worsening political and trade relations with Russia, Georgia is striving to *achieve full territorial integrity* through the settlement of internal conflicts in Abkhazia and South Ossetia.⁴⁷

In 2006 the Europe Neighbourhood Partnership Action Plan (ENP AP) was endorsed, whereby Georgia and the EU commit themselves to develop deeper economic integration and strengthen bilateral political cooperation, including foreign and security policy. Georgian legislation (including water legislation) is going to be harmonised to EU legislation.

Georgia recognises the *need for an integrated approach to manage natural resources*. However, the ecosystem-approach is still in a very early stage.⁴⁸

5.2 Key actors

The *Ministry of Environment Protection and Natural Resources* of Georgia is the government agency responsible for environmental protection and the rational use of natural resources. The first National Environmental Action Plan (NEAP) was adopted in 2000. Only a lesser part of the NEAP has been implemented, mainly due to lack of resources. The second NEAP is under preparation. Also local environmental action plans in selected municipalities are being developed.⁴⁹ The *Environmental Inspectorate* was created in 2005 under the ministry to improve enforcement of environmental legislation. On the local level, *Self-Government Units* (SGUs) have been established, to a varying degree responsible for issues such as land use planning, management of forests and water resources, and waste management.

5.3 Other actors

The formal government-led donor coordination has traditionally been weak, but the Ministry of Finance has been given full responsibility to coordinate activities of government with donors. The EC is regularly hosting meetings with member state embassies to coordinate activities. At sector-level, donor coordination is generally in place. In the environmental field, EC focuses on supporting: (i) development of legislation and basic procedures for ensuring the adoption of adequate standards for air and water quality, waste management and nature protection; (ii) implementation of multilateral environmental agreements; (iii) activities linked to the EU Water Initiative, and (iv) development of civil society, information monitoring and assessment. Other major donors include the World Bank, US government, EBRD, IMF Germany, Netherlands, UK, Sweden, and UN agencies. The donor density is high in the areas of infrastructure, environment, and private sector development.

5.4 Capacity needs

Overall environmental legislation is generally in place in Georgia but needs further development, especially regarding implementation. Strategic planning has not been widely practiced in Georgia so far. Furthermore, there is a lack of knowledge about current needs and capacities, especially at local levels. Access to local level legal documents is limited.⁵⁰ Existing waste management legislation is fragmented, and there are no national standards for air and water quality, landfill construction or clear rules for waste collection.

⁴⁶ IDA/IFC, 2005.

⁴⁷ EC CSP 2007-2023.

⁴⁸ Georgia National Report, 2004

⁴⁹ EC CSP 2007-2013.

⁵⁰ Ameco, 2008.

Areas that need strengthening for Georgia to improve environmental performance include:⁵¹

- Enhanced administrative capacities to ensure strategic planning of environment issues and coordination between the relevant authorities, issuing of permits, enforcement and inspection;
- Development of a framework legislation, basic procedures and planning for key environmental sectors, such as air- and water quality, waste management, and environmental protection;
- Implementation of existing national plans and programmes;
- Identifying opportunities for enhanced regional cooperation, in particular related to water issues.

6. Implementation and follow-up of responses to Environmental Problems and Opportunities?

Georgia faces significant challenges to promote environmental protection. As mentioned earlier, in general the environmental legislation is in place, but there are difficulties with implementation and enforcement due to limited administrative capacities, financial resources and political will, especially at regional and local levels. Georgia can potentially achieve most of the MDGs by 2015; however, without a significant increase in political commitment, reaching the environmentally related MDGs (such as water supply and sanitation, and integration of sustainable natural resources use into policies) will pose a big challenge.⁵²

The government has made determined efforts to reduce regulations, taxes and corruption in order to attract foreign investments. *Governance* is being improved and the anti-corruption efforts seem to have a strong ownership at the highest political level which is favourable to foreign investments.⁵³ The period after the Rose Revolution is characterised by frequent institutional and legislative changes that are directly related to the government's drive towards complete liberalisation and deregulation of economy and the desire to increase the state budget incomes. These changes, however, were not always made in a transparent or participatory way.⁵⁴

The *forests* of Georgia are presently entirely under state ownership, despite stated efforts to engage on a land reform. The former Kolkhoz forests are particularly deteriorated. Denationalisation of forests is only possible after Law of Georgia on Denationalisation of Georgian Forests has entered into force.⁵⁵

Development of *renewable energy sources* has a large potential in Georgia. The resolution of Parliament of June 2006 recognises the necessity of maximal utilisation of renewables (hydro and wind). However, without a comprehensive state policy, the political will to finance the technologies and a favourable tax regime, the development of renewable energies would be impossible. Currently, the conditions for supporting the development of renewable energies do not exist in Georgia, with the exception of small hydro-power schemes.⁵⁶

⁵¹ EC CSP 2007-2013

⁵² IDA/IFC, 2005.

⁵³ IDA/IFC, 2005.

⁵⁴ Green Alternative & Heinrich Böll Foundation, 2006.

⁵⁵ Green Alternative, 2007a.

⁵⁶ TI, may 2008.

Poor performance in the *waste management* field is due to lack of sufficient regulations and implementation problems, although the implementation problems are often related to imperfect legislation. Waste related responsibilities are often defined vaguely in the statutes of the SGUs.⁵⁷

Georgia has ratified international and regional conventions to which is signatory, with the exception of the Strategic Environmental Assessment Protocol of the UN-ECE Convention on EIA in a transboundary context. Georgia has not signed the UN-ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes.⁵⁸ Georgia is a member of the Black Sea Commission and other transboundary commissions and international cooperations, including the Eastern Europe, Caucasus and Central Asia component of the EU Water Initiative.

7. What are the implications for Swedish Development Cooperation?

7.1 Conclusions

From this brief desk review it is fair to conclude that the severe environmental problems Georgia is facing constitute key challenges to both poverty reduction and sustainable economic development. While recent economic and political reform efforts have been successful, a key concern is the effective implementation of the legal and policy framework for environmental management, leading to measurable improvements. Short-term economic growth must be balanced against a long-term sustainable development; unsustainable natural resources management will, vice versa, complicate long-term economic development.

The current Swedish support to Georgia has two main objectives: (i) strengthened democracy and human rights, and (ii) sustainable economic development primarily in agriculture. Strengthened democratic institutions, increased security, transparency and accountability, empowerment and improved human rights are likely to have a positive impact also on the use of natural resources and the environment. Support to the agricultural sector in Georgia is generally considered to be pro-poor and employment generating. It is important to bear in mind, though, that support to the agricultural sector (as other sectors) need to be sustainable and integrate concerns of climate variability and change, as agricultural productivity is closely related to climatic variations.

A suggested “road map” for sustainable management of the natural resources of Georgia the findings and recommendations of the Millennium Ecosystem Assessment (MA) (see box 2) can be put to good use. The overall aims of the MA were to contribute to improved decision-making concerning ecosystem management and human well-being, and to build capacity for scientific assessments of this kind. A substantial adoption of the MA conceptual framework, approaches, and methods in donors’ ongoing initiatives and programs to support natural resources management could “fast-track” the process for a sustainable development in Georgia. (For additional information on the MA, see annex 2)

7.2 Issues for Sida to consider

Against this background the following issues could be relevant for Sida to consider in the development of a new cooperation strategy with Georgia:

⁵⁷ Ameco, 2008.

⁵⁸ EC CSP 2007-2013.

- The agricultural sector is conceived as the most straightforward sector for broad-based poverty reduction and employment generation.
 - Support to this sector would affect a large proportion of the rural poor, *enable increased productivity* and food security, as well as *improved land management and climate change adaptation measures*.
 - *Access to markets and credits* are areas that could be of interest for Sida.
 - As insecurity is a constraint to productivity, support could also be focused on assessing whether the *land tenure policy* is adequately covering the potential conflicts for returning displaced persons. If this is not the case support could be given to support adjustment of the land tenure policy with this in mind.

- How can Sida together with other development agencies further support the integration of environment and climate change in key national and sector strategies (for instance within the energy, tourism, or agricultural sectors) and the implementation of the same?
 - Can the commitment stated in the EDPRP, to introduce *SEA* at early stages of decision-making be supported?
 - The area of climate change is a growing concern and it is important for Georgia to start developing its adaptive capacity. Sida, who has a long history of participatory development processes, could be well suited to assist in this area.

- Environmental management for improved public health is an area that needs attention. The potential gains are particularly important for poor and marginalized people, who are more vulnerable to cumulative effects of environmental pollution and who often reside close to environmental hotspots. Sida could, in a dialogue with the Georgian government and other donors investigate the needs and opportunities to support:
 - Improved quality and efficiency of *service delivery*, such as *sewage and wastewater treatment, energy/district heating or solid waste management*. Efforts in this area will have positive effects on sanitary conditions, public health and biodiversity.
 - Development of framework legislation, basic procedures and planning for key environmental sectors such as air- and water quality, waste management and environmental protection.
 - Development of *monitoring systems* for air, water, and soil quality, given the importance of monitoring the implementation of and making adjustment to environmental legislation and policies, for potential growth sectors such as tourism.
 - Completion and implementation of the long awaited *National Environmental Action Plan* could be investigated.
 - *Spatial planning, integrated land and water management, land reforms and improved tenure security*, given its importance for economic development?

Finally, this policy brief touches upon a range of highly complex issues. Needless to say, there are many aspects that deserve a much more detailed level of analysis. We hope, however, that this Environmental and Climate Change Policy Brief fulfils its aim of being a point of departure for a discussion on how environmental and natural resources aspects can be integrated into Swedish development cooperation with Georgia.

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Annex 1. Indicators for sustainable development

Indicators	MDG 7 ⁵⁹	1990*	1995	2006	2008
Forest area (% of total area)*	Yes			39.7	39.7
Nationally protected areas (% of total area)*	Yes			2.3	4.3
GDP per unit of energy use (PPP \$ per kg oil equivalent)	No			4.1	4.9
CO ₂ emissions (metric tons per capita)*	Yes	--	0	0.7	0.9
Access to an improved water source (% of population)*	Yes	76	78	76	82
Access to improved sanitation (% of population)*	Yes	96	95	83	94

Source: www.worldbank.org and www.developmentgoals.org

* WDI, Worldbank

** Little green data book (2006; 2008)

⁵⁹ The Millennium Development Goal 7 “Ensuring environmental sustainability” is divided into the following three targets: (a) Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources. (b) Halve by 2015 the proportion of people without sustainable access to safe drinking. (c) Achieve by 2020 a significant improvement in the lives of at least 100 million slum dwellers. The set of indicators listed in the table has been developed for the assessment of the development process in relation to the targets.

Annex 2: The Millennium Ecosystem Assessment

The Millennium Ecosystem Assessment in brief

The Millennium Ecosystem Assessment (MA) was called for by the United Nations Secretary-General Kofi Annan in 2000. Initiated in 2001, the objective of the MA was to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being. The MA has involved the work of more than 1,360 experts worldwide. Their findings, contained in five technical volumes and six synthesis reports, provide a state-of-the-art scientific appraisal of the condition and trends in the world's ecosystems and the services they provide (such as clean water, food, forest products, flood control, and natural resources) and the options to restore, conserve or enhance the sustainable use of ecosystems.

There is a growing understanding of the fundamental role ecosystems and the services they provide play for human welfare, see Fig 1. describing the linkages between biodiversity, ecosystem services and human well-being.

Key findings of the Millennium Ecosystem Assessment⁶⁰, finalised in 2005 and the so far most comprehensive survey of the ecological state of the planet, include:

- 60% of world ecosystem services have been degraded
- Of 24 evaluated ecosystems, 15 are being damaged, see Table 1.
- About a quarter of the Earth's land surface is now cultivated.
- People now use between 40 percent and 50 percent of all available freshwater running off the land. Water withdrawals have doubled over the past 40 years.
- Over a quarter of all fish stocks are overharvested.
- Since 1980, about 35 percent of mangroves have been lost
- Nutrient pollution has led to eutrophication of waters and coastal dead zones
- Species extinction rates are now 100-1,000 times above the background rate

The degradation of ecosystem services is hence already a significant barrier to achieving the Millennium Development Goals, contributes to growing inequities and disparities across groups of people, and is sometimes the principal factor causing poverty and social conflicts.

Figure 1. Links between biodiversity, ecosystem services and human well-being

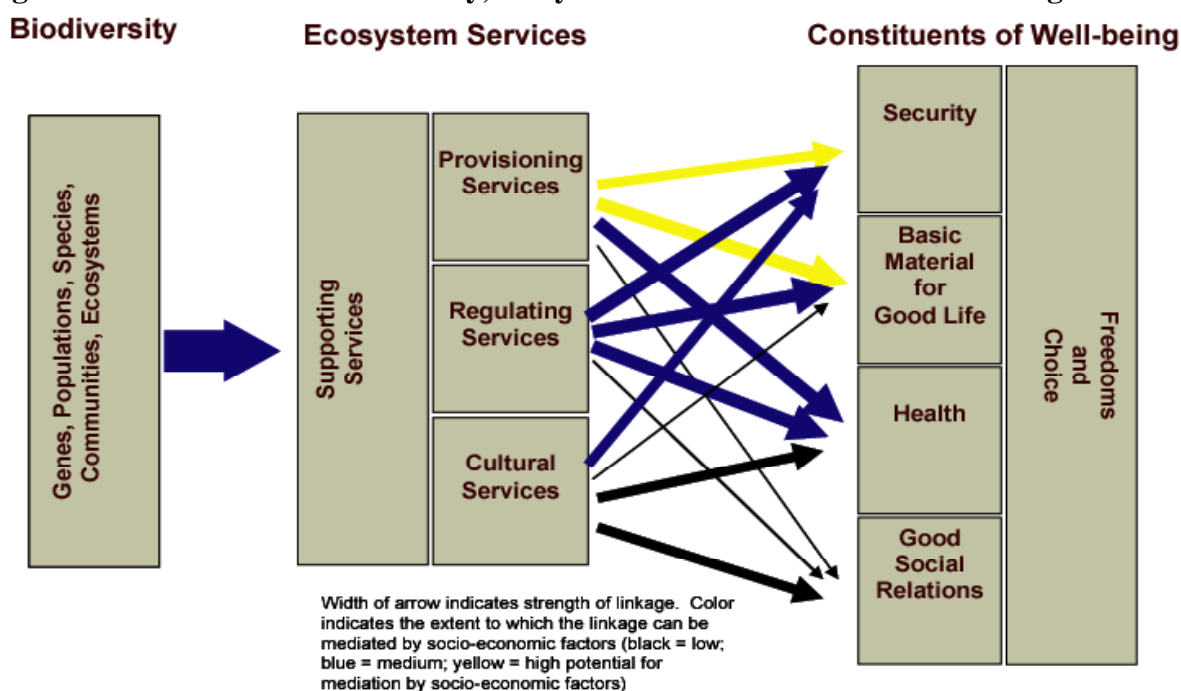


Table 1: Global condition of Ecosystem Services Examined by the Millennium Ecosystem Assessment

Ecosystem Services	Enhanced	Mixed	Degraded
Provisioning	Crops Livestock Aquaculture Carbon	Timber Fiber	Capture fisheries Wild foods Wood fuel Genetic resources Biochemicals Fresh Water
Regulating	Carbon sequestration	Water regulation Disease regulation	Air quality regulation Regional & local climate regulation Erosion regulation Water purification Pest regulation Pollination Natural Hazard regulation
Cultural		Recreation & ecotourism	Spiritual & religious Aesthetic values

For additional information on the MA including presentation materials etc, see <http://www.maweb.org>