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Global Environment Outlook

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Summary for Europe

On the Eve of Rio+20

Closer Regional Cooperation Vital for Meeting Europe's Environmental Challenges

Current Consumption Patterns Unsustainable, But Progress Made in Tackling Air Pollution, Chemicals and Waste

Europe[1] is at the forefront of international efforts to tackle climate change, establish protected areas and reduce air pollution, yet the region's environmental footprint remains disproportionately high, according to the Global Environment Outlook 5 (GEO 5) report from the United Nations Environment Programme.

Despite some successes in 'decoupling' environmental pressures from economic growth, large parts of Europe are consuming unsustainable levels of resources.

Comprehensive legislation is helping to improve the sustainable management of waste, yet volumes of waste continue to grow across the region. Figures suggest that Europe is still not a recycling society.

Approaches used by European countries to reduce greenhouse gas emissions and other pollutants have had considerable success; from introducing congestion tax and a low-emissions Zone in Sweden to introducing feed-in Tariff schemes in Germany. Many such policies have already been – and have the potential to be – replicated, with positive effects.

Such integrated, cross-sectoral approaches to environmental policy development and implementation has helped countries in Europe achieve long term results at lower costs.

However, a lack of environmental data, insufficient resources from public and private investors in tackling key environmental issues, combined with the persistence of traditional, consumption-oriented economic policies, are posing barriers to further progress in Europe.

The above are among the main findings for Europe from the Global Environment Outlook 5 (GEO 5), which analyses the worldwide state of the environment and tracks progress towards agreed goals and targets.

As well as presenting the state of the region's environment, GEO 5 highlights successful initiatives and policy approaches for addressing environmental problems in Europe that can potentially be scaled-up and replicated elsewhere.

[1] For GEO 5, Europe includes the following sub-regions: Western Europe *(Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Holy See, Iceland, Ireland, Israel, Italy, Liechtenstein, Luxembourg, Malta, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom)*, Central Europe *(Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Former Yugoslav Republic of Macedonia, Hungary, Latvia, Lithuania, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, Turkey)* and Eastern Europe *(Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, Russian Federation, Ukraine)*

Drivers

Central to the GEO 5 methodology is the concept that environmental pressures can only be effectively tackled if underlying drivers are addressed. Policies are most effective, argues the report, when they pro-actively address the causes of environmental degradation, rather than reacting to the effects.

The environmental drivers of environmental change in Europe highlighted in GEO 5 include population, urbanization, consumption and resource use, energy and transport.

Population

Europe and North America have slowest-growing populations and the highest proportion of elderly.

According to the European Environment Agency (EEA), population growth, together with a trend towards fewer people per household, has contributed to a large rise in the number of households in Europe. There is a similar trend in Central and Eastern Europe.

Smaller households use water and energy less efficiently and require more land per household member, so that these trends lead to greater per capita resource use.

At over 22 per cent, Europe registers the highest rate of internal migration of all world regions (largely rural to urban migration associated with labour mobility). This movement is often accompanied by changing patterns of energy use and increased meat and dairy consumption, which can intensify land pressures

Increasing demand for greater mobility, along with intensification of agriculture, has transformed a majority of European landscapes over the past 100 years and caused loss of habitats and biodiversity.

Consumption and Resource Use

The high production and consumption levels of Europeans are driving the unsustainable use of natural resources both within and outside the region. Thus, the region's environmental footprint remains disproportionately high.

The adoption of Western consumption habits in the new Member States of the European Union (EU), led to an increase in per capita municipal solid waste from 468 kg in 1995 to 524 kg in 2008 - an increase of 12 per cent.

Energy and Transport

Changes in household numbers outlined above are also impacting transport, since an increase in the number of homes occurs primarily in low-density suburbs. This results in more commuting, which adds to petrol consumption and pollution.

Parts of Europe may see a temporary decrease in transport activity due to the economic recession. However, GEO 5 notes that these are likely to be outweighed by increases in private vehicle ownership in low- and middle-income countries.

Priority Issues

During regional preparatory consultations for GEO 5, five priority environmental issues were identified for Europe: **Air Quality; Biodiversity; Chemicals & Waste; Climate Change and Freshwater.**

Air Quality

Across most of Europe, many aspects of air quality have improved in recent decades. However, poor urban air quality continues to adversely affect human health and ecosystems in some areas.

Reductions in emissions from road transport have been achieved through the establishment of European Union (EU) directives concerning fuels and vehicles, with fuel policy focused on banning lead and limiting sulphur content.

Under the 2008 Clean Air for Europe (CAFE) Directive, local authorities are obliged to prepare air quality management plans to ensure compliance with air quality standards.

The 2010 EU Industrial Emissions Directive and other measures have been instrumental in reducing industrial emissions of sulphur dioxide, which can contribute to the acidification of freshwater and soils and cause respiratory problems.

The pan-European scientific monitoring network of the Convention on Long Range Transboundary Air Pollution (CLRTAP) has been pivotal in building credibility, shaping policies and monitoring air quality trends

- Emissions of nitrogen oxide and volatile organic compounds are 30 and 35 per cent lower than 1990 levels, leading to reductions in short-term peak ozone concentration
- If the new National Emission Ceilings in Europe are implemented, fine particulate matter emissions could be reduced by 35–50 per cent
- Anthropogenic sulphur dioxide emissions among EU states fell by 80 per cent between 1990 and 2009.
- Control measures in Europe succeeded in reducing total emissions of nitrogen oxide (a greenhouse gas with high global warming potential) by 32 per cent between 1990 and 2005
- Around 100 low-emission zones in ten European countries have been established or are in the process of being established
- Europe has adopted a number of goals to help improve air quality, including targets adopted by the EU and other internationally-agreed goals. Among these are:
- Reduce the number of years of life lost due to particulate matter by 47 percent by 2020, compare to 2000 levels (EU)
- Reduce the number of premature deaths due to ground-level ozone by at least 10 percent by 2020, compared to 2000 levels (EU)

In order to help meet these goals (and other air quality targets) in Europe, GEO 5 recommends a number of policy approaches, including:

- Devolving responsibility in local air quality management to local administrations
- Reducing emission levels through command-and-control regulations (eg. environmental standards and performance standards) and by using markets

CASE STUDY: Stockholm's congestion tax and low-emission zone

In 2007, the Swedish capital launched a congestion tax for vehicles entering the city centre on weekdays during working hours. Clean vehicles running on electricity and biofuels were exempt from the tax. Results included:

• Number of trips and the distance traveled in the inner city decreased by 100 000 per day and 8.5 per cent respectively

• Share of clean vehicles in the private fleet increased from 5 per cent in 2006 to 14 per cent in 2008

• Average pollutant concentrations decreased in the inner city by 10 per cent for nitrogen oxides, 15 per cent for carbon monoxide and up to 20 per cent for particulate matter.

Additional benefits from the tax, such as shorter and more reliable travel times, reduced greenhouse gas emissions, reduction in health and environmental impacts are worth an estimated US$95 million per year.

Biodiversity

The European region is at the forefront of multinational biodiversity conservation efforts, according to GEO 5. Networks of protected areas have been successfully established, also contributing to an improved knowledge base for preserving and monitoring biodiversity.

However, due to landscape, ecosystem and habitat degradation in the region, the overall conservation status of habitats and species is showing no sign of improvement.

Protected areas can also play a key role in climate change mitigation and adaptation, preventing the conversion of natural habitats to other land uses and hence avoiding significant release of carbon. It has been estimated that about 15 per cent of the global terrestrial carbon stock is stored in the world's protected area network.

- 17 percent of Europe's species currently have favourable conservation status, 52 percent have unfavourable status (inadequate or bad) and the status of 31 percent is unknown
- The EU and its Member States did not meet the goal of halting the loss of biodiversity by 2010
- Although most European forests remain heavily exploited, the region's net total forest area is increasing

European countries have backed a number of internationally-agreed commitments on biodiversity, such as the CBD's Strategic Plan for Biodiversity 2011-20. Additionally, the EU has devised a Biodiversity Strategy for 2020, which includes the following commitments:

- Halt the loss of biodiversity in the EU by 2020
- Protect, value and restore EU biodiversity and ecosystem services by 2050

Policy approaches recommended by GEO 5 towards achieving biodiversity goals for Europe and other regions include:

- Support agri-environment measures, where farmland with a high nature value is conserved
- Support and develop protected areas, eg. Via the EU's Natura 2000 network and non-EU country networks. Natura 2000 has developed steadily over the last 15 years, and is now made up of more than 26 000 sites covering 18 per cent of the EU's land and sea areas.

Chemicals and Waste

Prevention, reuse and recycling of municipal wastes are among the most regulated activities in Europe. Yet volumes continue to grow in Europe, despite the EU's target to reduce waste levels.

In Eastern Europe, a legacy of industrial wastes from the socialist period still poses ecological problems, such as groundwater contamination.

GEO 5 notes that EU legislation on Registration, Evaluation, Authorization and Restriction of Chemical substances (REACH) looks promising for the regulation of chemicals in coming years.

The lack of data on existing chemicals, and the rapid technological changes that bring new chemicals to the market, have hindered the identification of the state and trends of chemicals and wastes in Europe.

- Only 38 per cent of total waste is reused or recycled in the EU
- Average amount of waste per citizen in the EU is approximately 6 tonnes per year
- Municipal waste recycling more than doubled between 1995 and 2008, rising from 17 per cent to 40 per cent
- It is estimated that by 2035 total waste generation in EU member states will have increased by 60–84 per cent compared to 2003 levels, although this may be revised due to the current economic crisis
- 90 per cent of waste in Russia originates from the mining industry. Around 26 per cent of total waste in Russia is recycled
- Obsolete pesticides could amount to between 256 000 and 263 000 tonnes in the countries of the former Soviet Union, the Southern Balkans and new Member States of the European Union, the Russian Federation and Central Asia together, costing US$768–790.5 million to dispose of.

The sound management of chemicals is addressed by 17 different multilateral agreements. In addition, the Strategic Approach to International Chemicals management (SAICM) was established in 2006. This multi-stakeholder policy framework includes the goal of achieving the safe management of chemicals worldwide by 2020.
Policy approaches recommended for Europe by GEO 5 relating to chemicals and wastes include:

- Focus on waste prevention, re-use and recycling. Proposed targets under the European Community's Waste Electrical and Electronic Equipment Directive (eg. to recycle 65 per cent of e-waste) are an example of this.

Climate Change

In terms of the total reduction in greenhouse gas emissions, European countries are leading the global climate change mitigation effort by a wide margin, says GEO 5.
European countries are implementing climate-related policies ranging from carbon taxes to emissions trading schemes, stimulating renewable energy systems and local voluntary efforts by municipalities.

According to GEO 5, the EU Emissions Trading System (ETS) is among the most promising policies being pursued and can provide lessons for other regions. The first and largest international scheme for trading emission allowances, it covers 40 per cent of EU greenhouse gas emissions.

For 2009, the EU carbon trading market was estimated to be worth nearly US$118.5 billion per year, compared to a global carbon credit market worth an estimated US$143.75 billion.

Regarding goals, the EU-27 has committed to reduce its greenhouse gas emissions by at least 20 per cent by 2020 compared to 1990 levels and to increase this commitment to a 30 per cent reduction if other major emitting countries agree to similar targets.

Projections from the European Commission show that the EU 27 is expected to achieve its 20 per cent commitment.

CASE STUDY: RENEWABLE ENERGY FEED-IN TARIFFS

Box 10.2 The German Renewable Energy Feed-in Tariff (REFIT) scheme

Feed-in tariff schemes were elaborated as the main support mechanism for renewable energy systems. Germany's Renewable Energy Feed-in-Tariff (REFIT) scheme was launched as early as 1991.

Between 2000 and 2010 under the REFIT scheme, the share of electricity in Germany produced from renewable sources increased from 6.3 to about 17 per cent.

In 2010, investments in Germany's renewable energy sector amounted to about US$3.5 billion and employed around 370 000 people. The equivalent of 5.8 per cent of Germany's CO_2 emissions in 2009 was thus avoided.

In addition, both EU and non-EU European countries are well on track to meet their own targets for emissions reductions under the Kyoto Protocol.

In addition to measures outlined above, GEO 5 highlights a number of policy approaches for addressing climate change in Europe, including:

- Encouragement of transnational voluntary networks for local action on climate change, which focus on sustainable lifestyles. Examples include Cities for Climate Protection and Local Governments for Sustainability (ICLEI)

Freshwater

Freshwater policies in Europe have been implemented successfully through a mix of policy instruments, but challenges such as overuse of water and water pollution persist in parts of the region, finds GEO 5.

In particular, eutrophication (such as algal blooms), caused by sewage discharges and agricultural run-off, is a major threat to European freshwater resources.

In parts of Europe, demand for water often exceeds local availability, a trend that is likely to be exacerbated by climate change.

- In some countries in Europe, up to 40 per cent of the total amount of water transported may be lost before it even reaches the consumer

- Worldwide, at least 169 coastal areas are considered hypoxic, with dead zones especially prevalent in seas around Europe, South East Asia and eastern North America

As many water bodies are shared by EU and non-EU nations, countries are encouraged to jointly prepare river basin management plans: the Tisza River Basin Management Plan provides a recent example of such cooperation across EU borders.

CASE STUDY: Integrated Management Plan for the Tisza River Basin

The Tisza River, which flows through parts of Hungary, Romania, the Republic of Serbia, the Slovak Republic and Ukraine, is the largest tributary of the Danube.

The main pressures threatening the region are pollution from nutrient, organic and hazardous substances, as well as both floods and droughts.

The countries of the Tisza Basin have prepared an integrated river basin management plan, formally adopted in April 2011, in which the steps and long-term action needed to reach the required improved water status for the basin by 2015 are outlined.

Water metering and water pricing have stimulated more responsible water use in parts of Europe.

- If individual metering systems are in place, average reductions of 10–40 per cent can be achieved in household water use
- In Armenia, water metering and other reforms introduced in the 1990s have contributed to a three to four fold reduction in average water use, compared to previous levels
- The reforms also became a trigger for other water sector improvements in the country, which were backed by a legal, regulatory and institutional framework. As a result, the quality and reliability of water delivery improved.

However, the costs of meter installation could be too high for poor households. Special subsidy schemes could be introduced for providing free meter installation for poor families, gradual repayment terms, and special provisions for writing off vulnerable families' accumulated water debts.

Regarding freshwater goals, EU's Water Framework Directive, for example, includes an overall objective to ensure all freshwater resources – for example, lakes, rivers, streams and groundwater aquifers – are in a healthy state by 2015. Countries in Europe also back internationally-agreed freshwater goals, including those laid out in the Johannesburg Plan of Implementation (2002).

GEO 5 recommends several policy approaches for Europe towards meeting freshwater goals, including:

- Focus on prevention and preparedness in relation to river basin management
- Support integrated water management through command-and-control regulations and by using markets

Environmental Governance and the Way Forward

During regional preparatory consultations for GEO 5, environmental governance was selected as a 'cross-cutting' theme for Europe, underpinning the priority areas for action outlined above. This was the case for all global regions. In addition, climate change and freshwater were selected as priority areas by all regions.

According to GEO 5, the integration of effective policies across multiple environmental themes and economic sectors is increasingly being taken into account in Europe. However, stronger governance mechanisms need to be in place to 'decouple' environmental pressures from economic growth and address unsustainable consumption levels, and other priorities for action outlined above.

A regional focus to tackle environmental challenges is especially important in Europe, given the region's dense network of political boundaries.

In addition to recommendations outlined under the priority areas above, the report makes a number of over-arching recommendations for improving environmental governance in Europe. These include:

- More efficient monitoring systems and reliable data to assess environmental impacts and risks
- Awareness-raising activities to engage civil society and encourage multi-stakeholder participation
- Commitment on the part of politicians to transition from traditional, consumption-oriented economic policies to policies that promote resource-efficiency and sustainable consumption and productions techniques

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