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Media Factsheet – GEO-6 Assessment for the pan-European region

UNEP report argues for more urgent action to address the systemic challenges that the region is facing and calls for enhanced cooperation to achieve SDGs

Batumi, Georgia 8 June 2016 – The latest Global Environment Outlook (GEO) report for the pan-European region shows how environmental challenges there are now more systemic, multi-faceted, complex, and intertwined with socio-economic factors. Meanwhile, ecological, societal and economic resilience will be negatively affected in coming decades by global megatrends that are largely outside the region’s direct control and influence.

Poor air quality, climate change, unhealthy lifestyles and the disconnection between society and natural environments increasingly affect human health in the region and give rise to new risks.

Living within planetary boundaries will require fundamental transitions in energy, food, mobility and urban systems, entailing profound changes in predominant institutions, practices, technologies, policies and lifestyles. New governance coalitions involving national and subnational levels of government, businesses and citizens are urgently needed.

Positive long-term outlooks call for an urgent shift from incremental to transformational change in order to: decarbonize energy and transport systems and reduce other harmful emissions; restore ecosystems; decouple resource use, including material footprints, from overall economic performance; “green” public and private sector procurement; strengthen environmental responsibility in business; and incentivize lifestyle changes.

“The GEO-6 assessment highlights how the transition to an inclusive green economy in the pan-European region must be built on resilient ecosystems, sound management of chemicals and clean production systems, and on healthy consumption choices” said Jan Dusik, Head of UNEP’s Regional Office for Europe, and *“the implementation of the 2030 Agenda for Sustainable Development provides an opportunity for greater integration and enhanced cooperation which is essential to address the multiple systemic, transnational and transboundary problems and the global challenges that are expected to impact the region in coming decades.*

Healthy planet, healthy people - major environmental issues in the pan-European region and their impact on human health and well-being

Climate change is one of the largest threats to human and ecosystem health and to achieving sustainable development in the pan-European region. It is also an accelerator for most other environmental risks. Impacts of climate change affect health through floods, heat waves, droughts, reduced agricultural productivity, exacerbated air pollution and allergies and vector, food and water-borne diseases.

Air quality is now the largest health risk to the pan-Europe population. The proportion of the population living in areas exceeding WHO air quality guideline values varies by pollutant, with between 87-93 per cent of the EU population exposed to high levels of fine particles (PM_{2.5}), 61-83 per cent to PM₁₀, and 97-98 per cent to high levels of ozone (O₃).

The vulnerable and poor stand to be most affected. In addition, air pollutants continue to damage ecosystems and the built environment, and also influence climate change.

Biodiversity loss and ecosystem degradation is continuing in the region and is mainly caused by increased land-use change, particularly agricultural intensification, urbanization and habitat fragmentation. On-going biodiversity decline and loss is particularly high in Eastern and Western Europe, with lower rates in Central Europe, the Russian Federation and Central Asian countries. Biodiversity underpins all ecosystem services, guaranteeing supply of environmental goods and services, such as nutrients and food, clean air and freshwater.

Competing interests for land resources are widespread across the region. Every day the countries of the EU28 alone lose 275 hectares of agricultural land to soil sealing and land take. Land quality impacts human health in various ways, through direct benefits from food and nutrition, living and recreational space for optimal lifestyles, physical exercise and even mental health.

Key findings of the GEO-6 assessment for the pan-European region

Air Pollution

Despite improvements in air quality in many parts of the region, air pollution is now the greatest health risk to the region's population. WHO estimates that in 2012 outdoor air pollution caused over 500,000 premature deaths in the region and indoor pollution killed another 100,000. The proportion of the population living in areas exceeding WHO air quality guideline values varies by pollutant, with between 87-93 per cent of the EU population exposed to high levels of fine particles (PM_{2.5}), 61-83 per cent to PM₁₀, and 97-98 per cent to high levels of ozone (O₃).

Drivers

- Economic activities: mostly from burning fossil fuels for energy, waste incineration and biomass burning, steel and metal manufacturing, cement production, oil refining and agriculture.
- Transport: Private vehicle transport has become a greater source of pollutants than industry in some EU countries. European policies have resulted in increased use of diesel engines, which emit more pollutants and contribute to urban air quality deterioration.
- International shipping within European seas, particularly along well-travelled shipping routes and in harbour city environments, contributed in 2010 up to 50 per cent of total NO_x, 75 per cent of total SO_x and 15 per cent of total PM_{2.5}, as a result of outdated engine technologies, highly polluting crude oil products and emissions of large amounts of soot, gas and aerosols.

Impacts

- Human health: health-related economic costs of air pollution in 53 countries of the WHO European region were estimated at \$1.6 trillion in 2010 and up to €940 billion in the EU alone.
- Ecosystems: excess deposition of nitrogen in the environment is a major cause of species loss, as well as growth in grasses and eutrophication that destroy vital habitats.

Responses

- The UNECE Convention on Long-Range Transboundary Air Pollution has successfully informed air quality policies.
- Human behavior, lifestyle, consumption patterns and transport options override all other factors that influence air quality in the pan-European region. Yet lifestyle changes have enormous – and cost-neutral – potential to improve the situation, compensating for often very expensive technological “fixes”.
- Advanced understanding of the benefits and feasibility of better air quality control measures and implementation of the best-available technology in industry, vehicles, ships,

agriculture and installations for domestic combustion, could dramatically improve current conditions.

- Integration of air quality and climate change policies could bring significant benefits for both fields, which have the same target: reducing fossil fuel combustion.

Climate Change

Climate change is one of the largest threats to human and ecosystem health, reducing the supply of food and nutrition, causing premature deaths from extreme weather events and affecting vital ecosystems. Across the region, the temperature has been rising steadily between 1980 and 2009 at up to 0.31°C per decade. Most coastal areas in the pan-European region are experiencing sea level rise, with the exception of the northern Baltic Sea and the northern Atlantic coast.

Drivers

- Resource consumption is strongly linked to carbon emissions and land use. In the pan-European region, the marked difference in material footprint of consumption is likely to persist between EU Member States while standing at around 25 tonnes per person per year on average, and countries from Eastern Europe, the Caucasus and Central Asia.
- Changes in the structure of trade contributed to a small reduction of total pan-European emissions through the substitution of domestic production by imports.

Impacts

- Extreme weather events: between 2000 and 2014, 337 riverine, flash or coastal floods in the pan-European region affected over 7 million people, killing more than 1,500 of them and causing more than US\$88 billion in damages. Some 25 drought events were recorded in the region between 2000 and 2015, affecting 8.67 million people.
- Agricultural productivity: crop yields may decrease by up to 30 per cent in Central Asia by the middle of the 21st century. Reduced productivity is also projected for the Mediterranean and South-East Europe, affecting food security and health.
- Human health: in warmer climates, several pathogens' chances to survive and thrive increase. For example, by 2071-2100, climate change could cause temperature-related cases of Salmonella infection to increase by 50 per cent.

Responses

- The EU's ambitious mitigation policies have resulted in a 21 per cent decline in emissions between 1990 and 2013. To meet Paris Agreement's goal, more ambitious targets are needed across the region.
- Strong policies are needed to develop renewable energy, increase energy efficiency, reduce consumption, phase out environmentally harmful subsidies and ensure energy security.
- Strong policy signals are also needed to influence public and institutional investors to pull out of carbon-stranded assets and reallocate funds to low-carbon strategies.
- More adaptation efforts are required, notably to coastal floods; growing crops suited for higher temperatures; and building infrastructure resilient to extreme weather.

Biodiversity

The pan-European region contains five global biodiversity hotspots, but also some of the most human-dominated environments, which have dramatically altered the natural environment, and reduced the size of natural and semi-natural habitats. In Western and Central Europe, only 38.4 per cent of the original species abundance remains, while 77 per cent remains in the Russian Federation. In three of the five hotspots the extent of the remaining primary habitat has shrunk below 20 per cent of its original size, and in the Mediterranean Basin only 5 per cent of the natural habitat remains, with many of its endemic species threatened with extinction.

Drivers

- Agricultural intensification and urbanization drives degradation and loss of natural habitat, which is the greatest pressure on biodiversity in the region.
- Over-exploitation of biological resources: e.g. for the EU, 58 per cent of assessed commercial fish stocks do not have a good environmental status and 40 per cent of catches remain unassessed.

Impacts

- Human Health: loss of pollinators reduces provision of healthy fruits, nuts and vegetables that can either lead to potentially increasing under-nutrition, or indirectly contributing to reliance on less healthy food and a subsequent increase in non-communicable diseases. Declining biodiversity can increase the likelihood of local transmission of infectious diseases and alter exposure across the region.
- Economy: invasive alien species severely affect critical ecosystem services, causing estimated economic losses of more than €12 billion per year in the EU alone. Loss of pollinating species can reduce crop yields, affecting food security.

Responses

- The Natura 2000 network is the most extensive network of protected areas in the world, comprising more than 27,000 sites, covering 18 per cent of the terrestrial area of the EU and 4 per cent of its marine waters.
- Improving open access to comprehensive and integrated biodiversity data to support assessment and analysis, as well as implementing conservation efforts, are urgently needed.
- Integrating biodiversity and ecosystem considerations into all aspects of spatial planning and new regulations for land and soil protection would further enhance biodiversity protection.

Chemicals and Waste

Heavy metals and persistent organic pollutant concentrations in the environment have on average been reduced across the region, though hotspots remain. Mercury pollution is still significant, and other priority concerns include toxic chemicals in consumer products, endocrine disruptors in products, hazardous substances in electronic products, environmentally persistent pharmaceuticals and nanomaterials.

Despite progress in municipal solid waste recycling rates in Western, Central and South Eastern Europe (29 per cent in 2012, up from 22 per cent in 2004), disposal of waste in landfills remains a major challenge. Waste from electrical goods and electronic equipment is one of the fastest-growing waste streams in Europe with more than 12 million tonnes expected to be generated in the EU in 2020. About a third of European farmland is currently used to grow food that is thrown away.

Drivers

- Lifestyle aspirations and growing consumption increase waste and the use of chemicals and there are significant differences in management capacity across the region.
- Legacy of environmental problems: continued reliance on heavy and highly resource-intensive industries and chemical-intensive agriculture in some countries in Eastern Europe, the Caucasus and Central Asia.
- Emissions from random dumping and uncontrolled burning of waste present particular health hazards and environmental risks.

Impacts

- Human health: toxic chemicals can damage reproductive, immune and endocrine systems and cause neurocognitive impairments, development disorders, carcinogenic mutations and chronic diseases.
- WHO estimates that exposure to chemical pollution can cause up to 19 per cent of cancer cases globally.
- Ecosystem health: chemical pollution can alter development, reproduction, behaviour and mortality in individual species, negatively affecting biodiversity and the ecosystem as a whole. These effects influence the ecosystem services available for human societies.

Responses

- Full and coherent implementation of the three global conventions on chemicals would improve management controls and reduce risks for human and ecosystems health. The globally harmonized system of classification and labelling of chemicals needs to be fully implemented.
- Waste hierarchy provides a guiding framework to increase economic value from resource use and to reduce waste.
- Closing resource-use loops through the promotion of circular economy principles offers further pathways to minimize waste and maximize resource use, whilst generating jobs.

Freshwater

Large differences in levels of sanitation and access to drinking water persist across the region. On average, almost 100 per cent of the urban population and 85 per cent of the rural population have access to improved drinking water sources. Access is lower in rural areas in Central Europe (38 per cent) and Central Asia (77 per cent). About 50 billion cubic metres of wastewater were generated in Western and Central Europe in 2010, a reduction of 11 per cent since 2000. In the other sub-regions, quantities of wastewater increased by 18 to 48 per cent over the same period. More than 90 per cent of the population in Western Europe and Israel was connected to a sewer system with wastewater treatment in 2010, while in Central Asia and South Eastern Europe, that rate was only 9 per cent and 13 per cent respectively.

Drivers

- Climate change is expected to intensify water scarcity in the Mediterranean region. Decrease in river discharge of more than 50 per cent is expected in Southern Europe, Israel, and large parts of Turkey while South Eastern Europe and Eastern Europe and Caucasus could experience a decrease of up to 30 per cent.
- Excessive water consumption in agriculture drives water scarcity in Central Asia, with average water withdrawals for irrigation at 12,294 cubic metres per hectare per year, compared to a global average of 7,700.
- Pollution loads from intensive agricultural practices and population agglomeration are causing a poor ecological status in about a half of the classified rivers and lakes in the EU.

Impacts

- Human health: more than 62 million people in the region still lack access to adequate sanitation facilities, making them vulnerable to water-related diseases. WHO estimates that in the region's low and middle-income countries, about 10 people a day die from diarrhoea caused by inadequate water, sanitation and hand hygiene.
- Economy: the overall reduction of river flows is likely to affect the electricity production sector.
- Competition for water increases the risk of conflict between water-related sectors.
- Cost of droughts: economic impacts of droughts over the past 30 years estimated at €100 billion across the EU, with annual costs of up to €6.2 billion.

Responses

- The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the EU Water Framework Directive are the most important instruments for meeting future water challenges alongside bi- and multilateral conventions on transboundary waters.
- Climate change adaptation policies need to re-evaluate the risks of extreme events (floods and droughts) and water management.
- Improving coherence between energy, agriculture, environmental and water policies would help to safeguard freshwater, or at least minimize the effects of sectoral activities.
- Reusing treated wastewater, an approach used in the Mediterranean rim countries, mainly for agricultural purposes, can reduce the stress on freshwater resources.

Coastal, Marine and Oceans

Across all of pan-European region seas and oceans, marine biodiversity is in poor condition and only 7 per cent of marine species indicate 'favourable conservation status'. Despite the decline of about 37 per cent in fish catches by the EU-28 - from a 1995 peak of 7.6 million tonnes down to 4.8 million tonnes in 2013 - all sub-regions share records of long-time global overfishing. The chemical status of pan-European oceans and seas has generally improved, but harmful substances continue to degrade coastal areas and open oceans, nutrient loads remain high and the impacts of new pollutants, including plastic wastes forming marine litter, are growing.

Drivers:

- Climate change introduces major physical, geochemical and biological upheaval in seas and oceans. Warming of seawater has multiple consequences for pan-European seas, including oxygen depletion that is further enhanced in semi-enclosed regional seas. Warming is also affecting food webs along with the introduction and spread of invasive species.
- Changing weather conditions and more frequent and intense storm surges, combined with sea level rise, may also profoundly impact coastal fringes, leading to losses of dune systems due to erosion and overall "coastal squeeze".
- Thinner ice cover in the Arctic Ocean leads to new and unexpected plankton outbreaks.
- Marine biodiversity loss is exacerbated by the cumulative effects from multiple human pressures and particularly intensive fishing activities, such as trawling.

Impacts

- Ecosystem health: harmful substances continue to degrade coastal areas and open oceans. New pollutants, including plastic wastes forming marine litter, are growing.
- Eutrophication related to nitrogen and phosphorus fertilizer inputs continues to be a major environmental problem in the region.
- Socio-economic impacts on local-to-global scales due to marine litter, leads to revenue losses for fisheries, tourism and the shipping industry, and impacts the health and well-being of people, while degrading inland, coastal and open-sea ecosystems.

Responses

- The new Common Fisheries Policy could ensure that fishing activities in European oceans and seas are environmentally less destructive and more sustainable in the long run.
- The establishment and expansion of marine protected areas and networks can act as a key conservation measure to safeguard marine biodiversity and ecosystems.
- Ecosystem-based management approaches offer promising, cost-effective ways to deal with the cumulative negative effects of human activities.
- Policy efforts are needed to reduce chemical and fertilizer contamination of Europe's seas, including new challenges of marine litter reduction. The environmental targets should be

continuously revised and assessments conducted through the Regional Sea Conventions, European directives and pan-European agreements.

Land

Land use change is leading to the deterioration of the physical and chemical properties of soils causing land degradation, water and air pollution, followed by losses of biodiversity. Soil sealing is considered the major threat in Europe. Across the EU until 2015, more than 20 per cent of Natura 2000 (protected) territories, 32 per cent of wetlands and 45 per cent of agriculture land have already been lost to sealing and land take. Forty per cent of the Mediterranean coast has been already sealed.

Drivers

- Competing interests on land resources is widespread across the region. Every day, EU Member States lose 275 hectares of agriculture land to soil sealing and land take. New forms of land take include implementation of solar panels and in many cases replacing cultivated crops.
- Urbanization is a well-known cause of land-use change, reflected mostly by the loss of arable land, natural habitats and biodiversity. Urban sprawl is driven by population growth, increased incomes, demand for housing and transport connectivity, while it is constrained by the cost of commuting, agricultural land values and rent and the amenity values of agricultural land and green space areas
- In Central and Eastern Europe, Central Asia, land abandonment has been a major driver. Abandonment mostly occurs in marginal areas with limited natural productivity and in sporadic cases also in productive ones due to migration and socio-economic factors.
- Europe (EU-28) is a net food importer as 40 per cent of the food needs and derived food products are imported. This externalization of European land demands is leading to a significant and detrimental European Global footprint.

Impacts

- Soil water erosion still affects more than 25 per cent of Europe, especially the Mediterranean and the Alps regions and to a lesser extent wind erosion is also a problem. The total area affected by water erosion in Central Asia is more than 30 million hectares, and by wind erosion – about 67 million hectares. There the main challenge to soil productivity is also soil salinization caused by improper management.
- The lack of green areas reduce air quality and living conditions to city dwellers. The loss of green areas in cities with 100,000 inhabitants was accompanied with a temperature increase on average by 5°C compared with the surrounding rural areas.
- About half of the land-take for urban development and infrastructure in the EU comes at the expense of arable farmland. This is a very significant figure since for every hectare of fertile arable land lost in the pan-Europe region, it would be necessary to bring a much larger area into production elsewhere. This could also accelerate the process of large-scale land acquisition beyond the region, mostly - but not exclusively - in Africa.

Responses

- Compared to other environmental domains, land and soils are not well covered by international, EU and national environmental laws. Sustainable land management including practices such as organic farming, conservation agriculture, agro-ecology and integrated soil fertility management have the capacity to harmonize sustained crop production systems with environmental protection.
- Given the rate of land consumption, the sustainability of the EU's environment and ecosystems is questionable and, without radical policy implementation, dependency on external

resources may become permanent. It is for these reasons that the EU has endorsed the no-net-land-take-by-2050 policy.

- Other ambitious targets are: 1) by 2020, the area of land in the EU that is subject to soil erosion of more than 10 tonnes per hectare per year should be reduced by at least 25 per cent compared to 2000; 2) soil organic matter levels should not be decreasing overall and should increase for soils with currently less than 3.5 per cent organic matter.

Options for the region moving forward

- Further improvements in regional environmental conditions are possible through regional and global multilateral environmental agreements by improving access to information, public participation and improved access to justice.
- Living within planetary boundaries will require fundamental transitions in energy, food, mobility and urban systems.
- New governance coalitions involving national and subnational levels of government, businesses and citizens are urgently needed.
- Further environmental progress requires decarbonize energy and transport systems; restoring ecosystems; decoupling resource use from economic growth; strengthening environmental responsibility in business; and incentivizing lifestyle changes.
- Resilient ecosystems, efficient resource use, clean air, sufficient clean water, sustainable management of chemicals and waste and sustainable cities are essential for a healthy planet and healthy people. However, neither environmental policies alone, nor economic and technology-driven efficiency gains will be sufficient to achieve sustainability. The 2030 Agenda and its Sustainable Development Goals recognize this reality. More ambition is needed.

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