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Environment and climate change: challenges and trends with a regional perspective

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*On the eve of the UN Conference for Sustainable Development **Rio+20**, the **United Nations Environment Programme (UNEP)** has submitted its fifth Global Environment Outlook (GEO-5)¹. This report shows that the world continues to speed down an unsustainable path despite over 500 internationally agreed goals and objectives to support the sustainable management of the environment and improve human wellbeing.*

GEO 5 assessed ninety of the most-important environmental objectives and found that significant progress had only been made in four. These are eliminating the production and use of substances that deplete the ozone layer, removal of lead from fuel, increasing access to improved water supplies and boosting research to reduce pollution of the marine environment².

Some progress was shown in forty goals, including the expansion of protected areas such as National Parks and efforts to reduce deforestation.

Little or no progress was detected for 24 – including climate change, fish stocks, and desertification and drought. Further deterioration was posted for eight goals including the state of the world's coral reefs, while no assessment was made of 14 other goals due to a lack of data.

Biodiversity, at Stake

The American continent guards a biodiversity sanctuary that is crucial for our planet, but which is also under constant threat, and exposed to various pressures. Biodiversity in the tropics, which cover a significant portion of Latin America and the Caribbean, has decreased by 30% since 1992.

In North America, large-scale commercial agriculture has had a negative impact on biodiversity. Species in grassland and dry land have decreased by 28 and 27%, respectively, since 1968, although bird species in wetlands have increased by 40 per cent thanks to several conservation measures.

A series of interrelated factors, such as habitat destruction, transformation and alteration; overexploitation and the unsustainable use of land and water resources; unsustainable land management practices; demographic pressures, and globalization, pose a threat to biodiversity.

Solutions are close at hand: Among other measures, priority should be given to increasing and enlarging protected areas; improving their management and creating improved connectivity; applying the

¹ GEO5 provides a scientific review of a selected set of environmental challenges, as well as of solutions available to respond to them, including their social and environmental costs, and the associated benefits.

The global intergovernmental and stakeholder consultation process undertaken as part of GEO5 established a High-Level Intergovernmental Advisory Group to identify and selected internationally agreed targets on with the GEO5 assessment is based, with a view to identifying the degree of progress made against them, and as a framework to assess regional policies.

² For a full list of goals and their progress status, please visit www.unep.org/geo/pdfs/geo5/Progress_towards_goals.pdf

ecosystem approach to biodiversity management, and promoting biodiversity conservation through the payment of ecosystem services.

Proper management of protected areas contributes to preserving biodiversity in the region, as well as to adapting to and mitigating climate change, and to the Gross Domestic Product of countries in the region.

An example of the above is the Mesoamerican Biological Corridor linking large and major habitat areas. The corridor not only promotes interaction and coordination efforts among the eight Central American countries that form part of it, but also the direct involvement of communities living there, thus contributing to creating a greater feeling of human wellbeing, while ensuring protection of the biological heritage in the region.

Taking steps in the right direction does not suffice, however. Faster, continuous actions need be taken. The GEO-5 report cautions that if humanity does not urgently change its ways, several critical thresholds may be exceeded, beyond which abrupt and generally irreversible changes to the life-support functions of the planet could occur.

Changing to Fight Climate Change

As far as climate change is concerned, GHG emissions may double in the next fifty years, with the ensuing global warming by 3° C or more by century-end, unless current models are changed.

Climate change exacerbates many of the environmental problems currently affecting our planet, in addition to threatening economic growth, poverty reduction and development objectives achieved thus far.

The Americas draw together largely different countries, ranging from the No. 1 world economy to some of the least developed nations. Although some countries in Latin America and the Caribbean make a relatively modest contribution to greenhouse gas (GHG) emissions, the continent as a whole is facing the negative consequences of climate variability and change.

The number of people affected by extreme weather-related events in Latin America and the Caribbean has grown from 5 million back in the '70s to over 40 million in the last decade. Beyond these events, poverty, marginalization, exclusion from decision making processes, improper education and deficiencies in basic infrastructure are some of the factors further contributing to making this an even more vulnerable region. As vulnerability to climate impacts increases, dealing with their underlying factors becomes a priority.

North America is still largely dependent on fossil fuels, but it appears reluctant to consistently and cohesively move towards renewable energy sources.

Coal-fed power plants remain the largest single energy source in the USA – the second largest coal producer worldwide (975 million tons/year). According to the Environmental Protection Agency (EPA), GHG emissions in the USA increased by 3.2% since 2009, to 6,821.8 million CO₂e tons, led by economic recovery and increased energy consumption.

Additionally, hydraulic fracturing has turned shale gas extraction viable, with the ensuing potential fragmentation of land and the degradation of air and underwater quality. A shift towards fossil fuels such as shale gas will probably exacerbate climate change, since methane emissions are at least 30 per cent higher than those from conventional gas.

Caring for the Layer that Protects Us

It is true that there have been success stories: From the almost complete elimination of the production and use of ozone layer-depleting substances to reductions in sulphur dioxide emissions through an emission reduction and trading programme, they all prove that international agreements and goals with specific targets may actually be met.

In line with the Montreal Protocol, the world has almost completely eliminated the production and use of ozone layer-depleting substances. In the USA alone, the estimated impact will be 22 million less cases of cataracts in people born between 1985 and 2100, and 6.3 million less skin cancer death cases by 2165. The emission reduction and trading programme that was launched in 1995 has managed to reduce sulphur dioxide emissions at a lower cost vis-à-vis that of traditional environmental regulations.

Four independent studies underscore that the decade between 2000 and 2009 has been the warmest in history, and that the rate of emissions from fossil fuels and cement production in 2010 was the highest ever. It is estimated that with a temperature increase of 2.5° C, by the year 2100 climate change will generate an annual economic damage of 1% to 2% of global GDP.

A Path to Hope

But it's not all bad news. The report says meeting an ambitious set of sustainability targets by the middle of the century is possible if new policies and sounder strategies are adopted, and gives many examples of successful policy initiatives, including public investment, green accounting, sustainable trade, the establishment of new markets, technological innovation and capacity building.

Moreover, where international treaties and agreements have tackled goals with specific, measurable targets—such as the bans on ozone-depleting substances and lead in petrol—they have demonstrated considerable success. Their full implementation and the achievement of sustainable development objectives for which they were designed remain pending, however.

Ultimately, the scientific evidence, built over decades, is overwhelming and leaves little room for doubt. That is why the international community understood that Rio+20 is a moment to turn sustainable development from aspiration and patchy implementation into a genuine path to progress and prosperity for this and the next generations to come. The two main topics at the Rio 20 Conference sought to discuss key issues where progress needs be made: A decisive and defining transition towards a Green Economy, and strengthening the institutional framework for sustainable development.

Capitalizing the Power of Law

Undoubtedly, we will not be able to move forward on these issues unless we have robust legal and governance mechanisms in place targeted towards the change we need.

In this sense, building adequate legal and institutional environmental protection frameworks has been at the heart of the activities of UNEP since its creation back in 1972. At a global level, UNEP has promoted the development of international environmental treaties that today underpin international environmental law and have had tremendous influence and impact on the drafting of environmental legislation in our countries.

The challenge remains, however, of attaining higher levels of enforcement of and compliance with environmental rights and responsibilities under international treaties and national legislations, as well as of moving forward with designing regulatory mechanisms for the all-round promotion of sustainable development integrating social, economic, and environmental concerns. In this sense, a green economy offers huge potential for work and a wide range of opportunities.

A Green Economy in the Context of Poverty Eradication and Sustainable Development

Today's economic dynamics, where natural resources are used and degraded to generate material wealth, have not succeeded in putting an end to social inequality or in mitigating the most pressing needs of the population. Added to this unstable environmental situation are the global financial and economic crises, which bear witness to the need to safeguard the environment while enjoying the goods and services it offers, so as to create favourable conditions for an adequate development of the population.

Against this backdrop, a green economy seeks to provide the basis for sustainable development through dynamics that are socially inclusive, with low carbon emissions, and resource-efficient. In general, it is possible to achieve a green economy by effectively acknowledging the important benefits delivered by ecosystems and their roles at all levels of the decision-making process.

As already stated, one of the two main themes of the recently concluded United Nations Conference on Sustainable Development (Rio+20) was "a green economy in the context of sustainable development and poverty eradication". Discussions were therefore focused on the state of the environment and future outlook. The outcome document of the Conference titled "The Future We Want"³, reaffirms (par. 42) "the key role of all levels of government and legislative bodies in promoting sustainable development. The document also encourages (par. 62) each country to consider the implementation of green economy policies in the context of sustainable development and poverty eradication, acknowledging (par. 56) that "there are different approaches, visions, models and tools available to each country, in accordance with its national circumstances and priorities, to achieve sustainable development in its three dimensions."

The Key Role of Governments

In this sense, the direct action of governments is essential to create the conditions needed to effectively drive the transition to a green economy, which include the establishment of a sound regulatory framework providing for legal security; the prioritization of government investment and spending in areas that stimulate the greening of economic sectors; the prioritization of spending in areas that deplete natural resources, and the use of economic instruments to shift consumer preference and promote green investment.

Multilateral environmental agreements referred to above play a significant role in promoting green economic activity. By way of example, the United Nations Framework Convention on Climate Change and the Kyoto Protocol are two significant tools to drive the transition to a low carbon and green economy, for example through the emission trading and clean development mechanisms.

Certainly, much more needs to be done at a global level. Changing international trade rules can have a significant influence on green economic activity by either enabling or obstructing the flow of green investments, technologies and goods.

However, while international law is an essential tool for cooperation, in particular in the field of the environment, it should not be forgotten that, ultimately, implementing changes on the ground requires changing laws and institutions at both the national and local level. In this sense, legislation should be passed which provides for the promotion of long-term environmental protection and for a clear pathway towards sustainable development while guaranteeing its "cross-cutting" nature.

Elimination of Perverse Subsidies

In addition, it is important to work on fiscal reforms providing for the creation of taxes (or other mechanisms) on contamination and environmental degradation, for the elimination of perverse subsidies

³"The future we want" Draft Resolution submitted by the President of the General Assembly.A/66/L.56. 24 July 2012. Available at <http://daccess-ods.un.org/access.nsf/Get?Open&DS=A/66/L.56&Lang=S>

(on fuel, land clearing, overfishing,...), for the creation of a sustainable government procurement system, enhanced transparency and accountability, as well as for strengthening political consensus.

Indeed, over the last few years there have been a large number of success stories and legal best practices. They are a clear proof that change is on its way, and they also demonstrate the variety of opportunities available for promoting the green economy through legal and policy frameworks.

Firstly, there is the rather traditional area of public planning law. Legal tools including environmental impact assessments and the more recent strategic environmental assessments play an increasingly important role in planning and authorizing economic activities worldwide. These laws are changing the way investments are traditionally made.

Another approach is to establish and enforce technical standards for products and/or production processes and methods that may, for instance, enhance energy efficiency or set emission reduction targets as effective tools for achieving environmental objectives and for enabling markets in sustainable goods and services.

The behaviour of individuals and companies can be indirectly changed by establishing incentives for environmentally-friendly behaviour.

It is also possible to explore the option of creating incentives by amending tax laws (e.g., by providing subsidies and input tax or removing harmful subsidies).

However, while these examples are promising new beginnings, we will not make any real progress unless we change some of the fundamental rules of our economic systems. We need to change the legal frameworks for economic activity so that they adequately reflect the true value of environmental services and of natural resources.

Emission trading is a step forward in that direction. There are also some experiences in regulating drinking water and wastewater in many countries. Yet another example is regulating payments for environmental services, a system already being implemented by some countries through actions such as forest carbon credits.

If these innovative tools are to attain their objectives, there are two general and cross-cutting requirements that legal frameworks must meet:

One is necessarily guaranteeing access to information, public participation, and access to environmental justice. Efforts are underway to implement Principle 10 of the Rio Declaration at global and national levels. The UNEP Governing Council adopted Guidelines on Access to Information, Public Participation and Access to Justice for national legislatures in 2010. In turn, the countries in the region have made progress in the creation of strict regulatory frameworks on these issues.

The second requirement relates to social justice. Environmental laws and regulations are needed to ensure human well-being and long-term prosperity by safeguarding the resources on which we all depend. In developing countries in particular, a large number of people directly depend on the environment and on natural capital for their survival. Legal and institutional reforms intended to manage such capital should be designed so that they have a strong positive impact on these people's livelihood.