Global sustainability reporting: the corporate path to a green economy

Existing voluntary arrangements for sustainability disclosure have reached their limits. We require a new mandated approach to establish global standards of corporate responsibility

By Achim Steiner, United Nations under-secretary general and executive director, United Nations, Environment Programme, and David Pitt-Watson, chair, Hermes Focus Asset Management, and chair, UNEP FI Investment Commission

As the heads of state and government meet in Mexico for the G20 summit, thoughts will surely also be on the Rio+20 Summit immediately following it. One defining, decisive and positive outcome for the planet and its people could be a global commitment to corporate sustainability reporting and the use of sustainability information in financial sector decision-making.

Since the 1992 Rio Earth Summit, increasing numbers of companies have been factoring environmental, social and governance issues into their operations and business models. Around a quarter of corporations surveyed by Bloomberg are now encapsulating and disclosing some of these elements in their annual reports, side by side with cash flows, debts and liabilities. Meanwhile, several stock exchanges ranging from Istanbul and Johannesburg to São Paulo and Singapore are now requiring a serious commitment to environmental, social and governance issues from their listed firms. Dedicated sustainability indices have also emerged among some international rating agencies and exchanges, including the Dow Jones Sustainability Index, the FTSE4Good and the NASDAQ Global Sustainability Index.

This progress is welcome: it allows pension funds, shareholders and other investors to pick firms where sustainability is central – not least because there is good evidence that such corporations are better run, manage natural resources more efficiently, have reduced pollution footprints, are less prone to shocks in a globalised world and are less vulnerable to reputational risk. It is also assisting governments with a wide range of challenges, from meeting greenhouse gas targets to tracking health and safety improvements for workers across sectors and geographic regions.

Limit to voluntary arrangements

However, it is not enough. Both the United Nations Environment Programme (UNEP) and the Corporate Sustainability Reporting Coalition – an alliance of pension funds and investors with $2 trillion worth of assets under management along with a range of key corporate and civil society players – conclude that existing voluntary arrangements have hit their limits. Turning sustainability disclosure into a regular requirement will speed up the process of corporate responsibility vis-à-vis society and the environment, an indispensable prerequisite for delivering sustainable development.

Turning sustainability disclosure into a regular requirement will speed up the process of corporate responsibility, an indispensable prerequisite for sustainable development

The availability of relevant and comparable information is also fundamental in enabling investors and other financial players in the financial sector to align their decision-making with the long-term needs of sustainable development – and encouraging them to do so more systematically.

The time is ripe for a global policy framework on corporate sustainability reporting. This is essential in order to move forward and assist in fast-tracking a transition to a global green economy.

Why? First, several countries including China, Denmark, Ecuador, India, Norway, Singapore and the United Kingdom have recently created laws, procedures, guidelines and standards in line with the proposed convention. A survey of stock exchanges has found that 80 per cent of those responding wanted a global approach to sustainability reporting; only 30 per cent objected to this being mandated. Clearly mandatory corporate sustainability reporting can be done.

Second, many of the nuts and bolts underpinning a potential global framework already exist, via such voluntary efforts as the UNEP-founded Global Reporting Initiative, the Global Compact, the Carbon Disclosure Project and the International Integrated Reporting Council, which advocates integrated reporting – this being a holistic representation of the 'state of play' in a company and in respect to sustainability reporting, a necessary stepping stone in achieving such representation.

Third, there is an inherent risk in failing to tackle corporate sustainability reporting at the global policy level. While efforts by individual countries are to be welcomed, what business and finance needs most to fulfil their role towards a green economy is not many different standards (which over time would make international business and market access more complicated), but a common global agreement on reporting that will be more effective and cost less.

Some countries and companies may fear that a global policy framework such as a convention could prove a bureaucratic strait jacket or a costly brake on profits. This need not be the case. Indeed, experience has shown how the benefits of corporate sustainability reporting can be reaped without becoming an extension of red tape, and that having a global standard need not imply a 'one-size-fits-all' approach.

Governments can have the flexibility to implement in a variety of different ways,

Recycling plastic bags in North Africa for sustainable recovery, one example of new opportunities in a resource-efficient, job-generating green economy

whether through new laws, existing company laws or via listing authorities such as national stock exchanges.

Moreover, once adopted on a national level, compliance by individual companies could be done on a 'report or explain basis', effectively turning the tables on the current situation of opting in to corporate sustainability reporting to one where companies would have to opt out.

In other words, it would be up to companies' boards of directors to define what is material and needs to be reported, on the one hand, and what is immaterial and should be merely explained to regulators and shareholders, on the other.

Every day, trillions of dollars flow in and out of investments across the globe, a proportion of which is assisting in generating the conditions for a transition to a low-carbon, resource-efficient, job-generating green economy. A global commitment on sustainability reporting could dramatically assist in accelerating and scaling up these positive investment flows and bridge what is currently a big gap between ambition and reality for a sustainable future.

The momentum is rapidly gaining ground among responsible investors, an increasing number of corporations and forward-looking sectors of civil society.

The stakeholders of today want to be able to make an informed assessment, from companies' announcements and reports, of their overall performance, which includes social and environmental aspects in addition to financial aspects.

A range of commitments will be before world leaders at the Los Cabos Summit. Evolving sustainability reporting onto a higher, more widespread and legally grounded level, ideally in the form of a future convention, should be firmly on their radar as one inspiring policy option guaranteed to deliver powerful and positive environmental, social and economic outcomes. ■

The year that the world faced up to climate change

Mexico welcomes world leaders to the G20 summit, having just endured its worst drought for decades, which has focused the country on finding answers to the problems caused by global warming

By Michel Jarraud, secretary general, World Meteorological Organization

Mexico, the host of the 2012 Los Cabos Summit, has just endured its worst drought in 70 years, which threatens to have a far-reaching impact on the lives and livelihoods of its people.

In the words of G20 and Mexican president Felipe Calderón: "There is a terrible climate change problem. This is not just an issue regarding environmental issues. This is an issue that relates to the viability of our civilization's whole model as we look ahead to the end of this century."

Mexico is not alone. The 2011, *Annual Statement on the Status of the Global Climate*, published by the World Meteorological Organization (WMO), revealed that it was a year of climate extremes around the world. Significant flooding occurred in many places, while major droughts affected parts of East Africa and North America, largely because of a very strong La Niña event. Global mean temperatures in 2011 did not reach the record-setting levels of 2010, but were still the highest observed in a year with a La Niña, which has a cooling influence. Arctic sea-ice extent fell to near-record-low levels.

The preliminary findings of a forthcoming WMO Decadal Global Climate Summary show that climate change accelerated in 2001-10, which was the warmest decade ever recorded in all continents of the globe. The rate of increase in temperatures since 1971 has been remarkable.

Irreversible impacts

Climate change is happening now and is not some distant threat to worry about in the future. The world is warming up because of human activity and this is having far-reaching and potentially irreversible impacts on the Earth, atmosphere and oceans. Concentrations of greenhouse gases in the atmosphere have continued to increase unabated, reaching an all-time high in 2011. Between 1990 and 2010, according to the report, there was a 29 per cent increase in radiative forcing – the warming effect on the climate system – from greenhouse gases.

Population growth, industrialisation, globalisation, increased demand for food, energy generation – human activities are straining the planet's limited natural resources. Climate change and environmental degradation are likely to place even further pressure on ecosystems. The world therefore needs to do much more to embrace sustainable development – defined by the World Commission on Environment and Development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs".

Development goals

The United Nations Conference on Sustainable Development (Rio+20), to be held in Brazil on 20–22 June 2012, aims to secure renewed political commitment for sustainable development, to assess progress to date in achieving the targets of Agenda 21 and to address new and emerging challenges. The WMO and the National Meteorological and Hydrological Services of its 189 member states and territories will work with the rest of the international community to realise the promises of, in particular, the Millennium Development Goals (MDGs), with a major focus on human health and development, to achieve 'The Future We Want'.

The Global Framework for Climate Services promises to coordinate efforts across the meteorological, hydrological, environmental, climatic and socioeconomic communities. It is being developed by WMO

in conjunction with the broader United Nations system and is a key mechanism for achieving the MDGs. The framework will harness climate services in support of development, thus contributing to an enhanced quality of life worldwide.

The framework is based on the philosophy that sustained capacity for management of the climatic risks today is the foundation for efficient management of the increasing climatic risks of tomorrow, which scientists have predicted will be greater in scope and magnitude, as the consequences of human activities on the environment are felt.

It aims to provide climate information tailored to users' needs. The four initial priorities will be food security, water management, disaster risk reduction and health, because of the pressing need for climate information to guide long-

Water shortages during the recent drought in Mexico, which affected almost 70 per cent of the country, had a devastating impact on communities and industry

term planning on agricultural land use, dam construction, coastal defences and malaria-control programmes, to name but four examples. Other climate sensitive socioeconomic sectors, including energy, transportation, tourism and urban planning, benefit from such tailored services.

Extensive collaboration

WMO has made the framework its top priority because existing climate services do not reach the most vulnerable. Indeed, about 70 developing countries have little or no climate information. WMO believes that with a relatively small annual investment of around $75-$100 million it can build the foundations of this framework, which will allow governments to capitalise on the billions invested in climate observation, research, modelling and prediction during the past 30 years and on the progress made in short-range (days) to medium-range (weeks) forecasts by expanding to much longer ranges (seasonal to decadal). This will yield significant benefits, with a large return on investment.

Given the complexity of naturally occurring climate variability, amplified further by human-induced climate change, it is beyond the capacity of any single country or institution to build such a service on its own. Accordingly, the framework will be based on a long-term cooperative arrangement through which the international community will work together to facilitate the generation of and access to climate information and services.

To meet its objectives, the framework will require extensive collaboration among national and local governments, agencies, non-governmental organisations, civil society, the private sector, universities and research institutions. As such, the framework will be supported by the entire UN system as well as other organisations. The scientific and technical capabilities of all stakeholders will have to be improved. New capacities will have to be developed by reinforcing and aligning institutional arrangements, improving infrastructure and systems, and developing human skills and training.

The national infrastructure for the systematic collection of high-quality climate observations will have to be strengthened in many countries and regions. The maintenance of observation networks is critical, and will need financial support from governments. An extraordinary WMO congress meets in October 2012 to decide the governance structure of the framework and an implementation plan. It is an ambitious undertaking, but we are confident that we will succeed with it. ■

Biodiversity, its values and economic development

Living in harmony with nature underpins human society. Targets aimed at protecting the world's biodiversity will not only help the environment but also foster sustainable economic development

By Braulio Ferreira de Souza Dias, executive secretary to the Convention on Biological Diversity

The planet's species and habitats, and the goods and services they provide, form the basis of the world's wealth, health and well-being. Biodiversity underpins the functioning of ecosystems that human societies are built on. Its continued loss, therefore, has major implications for the well-being of the world as a whole.

The provision of food, fibre, medicines and fresh water, as well as the pollination of crops, the filtration of pollutants and protection from natural disasters are among those ecosystem functions potentially threatened by declines and changes in biodiversity. The fulfilment of cultural needs such as spiritual and religious values, the opportunities for knowledge and education, as well as of recreational and aesthetic values are also affected.

Addressing biodiversity loss is a prerequisite for economic prosperity in the 21st century – a century that will be characterised by the challenge of population growth, increased consumption from a rapidly growing global middle class and the impact of climate change.

A set of ambitious targets

As a road map for the way forward, the 193 parties to the Convention on Biological Diversity (CBD) adopted the Strategic Plan for Biodiversity 2011–20 and its 20 ambitious Aichi Biodiversity Targets. These are not just a step towards sustainable development and a green economy; they are also an opportunity for G20 countries to achieve their own goals.

Of the suite of 20 targets, several address the importance of biodiversity for the economy. They provide tools and approaches not only for government, but also to help the business sector shift production and consumption in a more sustainable direction. These targets offer a way to address the valuation of biodiversity and the impact of incentives on protecting it.

Target two calls for the integration of biodiversity values into national and local development and poverty reduction strategies and planning processes, as well as into national accounting and reporting systems. Integrating and reflecting the contribution of biodiversity and the ecosystem services it provides in relevant strategies, policies, programmes and reporting systems is an important element in ensuring that the diverse values of biodiversity and the opportunities derived from its conservation and sustainable use are recognised and reflected in decision-making. Similarly, accounting for biodiversity in decision-making is also necessary to limit the effect of unintended negative consequences.

Overall, the CBD's targets are not only designed to deal with halting the loss of biodiversity. They also represent opportunities for countries to realise economic efficiencies

The third target addresses eliminating, phasing out or reforming incentives, including subsidies, that have a harmful impact on biodiversity. This is done in order to minimise or avoid any negative impact on the environment and to promote positive incentives for the conservation and sustainable use of biodiversity.

Ending or reforming harmful subsidies would also generate net socioeconomic benefits. The creation or further development of positive incentives for the conservation and sustainable use of biodiversity – provided that such incentives are in harmony with the CBD and other relevant international obligations – could also provide financial resources or other motives to encourage actors to undertake actions that would benefit biodiversity and the environment overall.

Negative incentives

Therefore, depending on national circumstances, countries could try to accomplish three things. For some countries, it may be possible to abolish damaging economic incentives outright. However, for many others a more steady, gradual approach may be required, as different sectors or groups in society have come to depend on whatever incentives are available. In some cases, there will be powerful vested interests that have strong reasons for maintaining them.

It will not always be possible to eliminate or phase out incentives that damage the environment. In these cases, efforts should be made to reform them. They may be deemed important for other societal objectives – these incentives should be reformed so that their negative impact is reduced as much as possible.

Finally, plans should be made to develop and apply positive incentives for the conservation and sustainable application of biodiversity.

An overarching principle in this target is that any actions taken should be in harmony with the CBD and other relevant international obligations, taking into account national socioeconomic conditions. They should contribute to the conservation of biological diversity and the sustainable use of its components; they should not have a negative impact on the biodiversity and livelihoods of other countries; and they should contribute to sustainable development and the eradication of poverty.

The fourth target of the strategic plan calls for governments, business and stakeholders at all levels to take steps to achieve plans for

Wanawake Kwanza (Women First) growers' association in Maza village in Tanzania. Safeguarding the biodiversity of ecosystems is of critical importance

sustainable production and consumption and keep the impact of the use of natural resources well within safe ecological limits.

Tackling over-exploitation

The unsustainable use or overexploitation of resources is one of the main threats to biodiversity. Many individuals, businesses and countries are making an effort to substantially reduce their use of fossil fuels, with a view to mitigating climate change. Similar efforts are needed to ensure that biodiversity is also kept within sustainable limits.

Achieving sustainable production and consumption is a long-term process. For this reason the target requires that parties and stakeholders start taking the steps or develop the plans needed to achieve this.

This target also seeks to ensure that the use of natural resources are kept within safe ecological limits. What constitutes an ecological limit is a broad concept. But it can be generally understood as a point where the amount of resources being extracted or used is less than or equal to the amount of resources that ecosystems are able to provide on a sustainable basis, while maintaining the functionality of the ecosystem.

Although specific limits will vary with different ecosystems, in many cases the actual limits will be unknown, so applying a precautionary approach will be advisable.

Overall, these targets are not only designed to deal with halting the loss of biodiversity. They also represent opportunities for countries to realise economic efficiencies. Subsidy reform and attention to sustainable consumption and production have the potential to realise tremendous economic gains.

Biodiversity, if properly valued, represents an important national natural asset that, if properly harnessed, can be the means to sustained economic growth – a future of life in harmony with nature. ■

The contribution of civil aviation to climate change control

The aviation sector not only makes an important contribution to international economic growth – it is also spearheading policies to address the environmental issues associated with air transport

By Raymond Benjamin, secretary general, International Civil Aviation Organization

If you flew to the G20 Los Cabos Summit, this has probably been the safest activity you engaged in today. The aircraft that you flew on is 70 per cent more fuel efficient and 75 per cent quieter than if you had taken the same trip 40 years ago. Since 1944, the International Civil Aviation Organization (ICAO) has been the specialist agency for international civil aviation for the United Nations.

The organisation sets standards, policies and guidance necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. It serves as the forum for cooperation in all fields of civil aviation among its 191 member states in order to ensure that international air transport services are operated soundly and economically.

Civil aviation plays a key role in society as it affects social, cultural, economic, commercial, political and environmental aspects of life. It therefore has a primary role in the search for opportunities and solutions for sustainable development across its social, economic and environmental pillars.

Aviation is a vital element of the global transportation system, bringing people together in remarkable ways. In 2011, around 2.7 billion passengers were transported safely by air. This figure is forecast to exceed seven billion by 2030. In addition to people, more than 50 million tons of cargo – approximately 40 per cent of world trade by value, but less than two per cent by volume – are carried annually. Air transport supports 3.5 per cent of the global gross domestic product (GDP), including the employment of more than 56 million people worldwide. If aviation were a country, it would rank 19th in size by GDP, about the size of Switzerland.

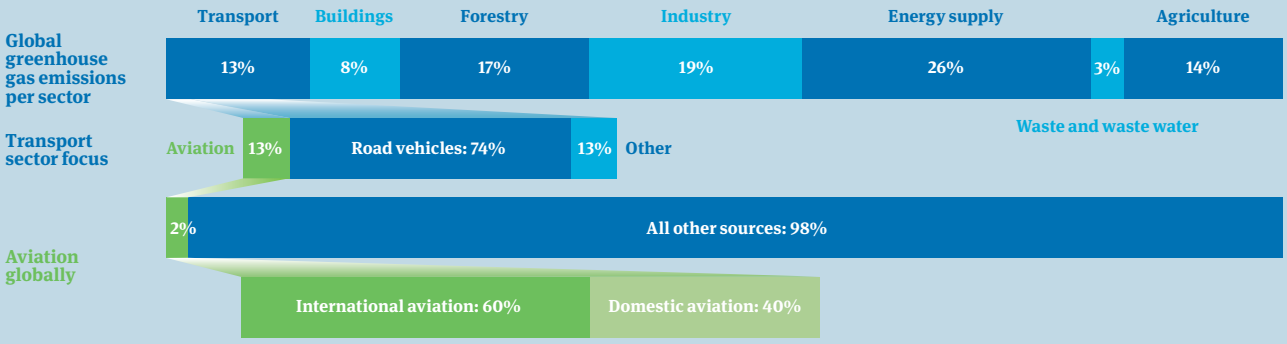
These figures relate to total global aviation, both domestic and international. Measures that can be applied towards improving the sector's environmental performance often benefit both domestic and international aviation. However, while the responsibility for domestic aviation rests with individual states, the responsibility for international aviation resides with ICAO.

As the world has become increasingly concerned with global climate change, ICAO has taken the lead in addressing international aviation's contribution. This is estimated by the Intergovernmental Panel on Climate Change to be approximately two per cent of global anthropogenic carbon dioxide emissions and forecast to grow to three per cent by 2050. Of that two per cent, international aviation represents approximately 62 per cent (see box below). This portion is the responsibility of ICAO.

While international aviation's contribution to global emissions is modest, its emissions

The focus on climate change – sound policies based on sound information

Total CO_2 emissions from aviation (domestic and international operations) currently account for approximately two per cent of total global CO_2 emissions (*IPCC 4th Assessment Report 2007*); approximately 60 per cent of that two per cent are from international aviation (around 1.2 per cent)



Although the contribution of aviation operations to total global CO_2 emissions is relatively small, forecasted traffic growth (around 4.7 per cent per year) raises questions on the future contribution of aviation activity to climate change and on the most effective way to address CO_2 emissions from the sector

LAN Airlines staff prepare for the first flight in Latin America using a navigational system designed to reduce emissions

are growing. In October 2010, ICAO's members adopted a comprehensive global policy on addressing greenhouse gas emissions. Resolution A37-19 from the ICAO Assembly reflects the determination of its members to play a leading role in addressing climate change by working through ICAO to limit or reduce emissions from international aviation, identifying a global solution while taking into account the special needs and circumstances of its members.

The resolution includes a global aspirational goal of an improvement of two per cent in fuel efficiency annually up to 2050, a medium-term global aspirational goal from 2020 that would ensure that global carbon dioxide (CO_2) emissions would be stabilised at 2020 levels and further work to explore the feasibility of a long-term global aspirational goal for international aviation. The resolution also includes de minimis provisions based on the amount of international air traffic to ensure that states with small contributions to global air traffic (less than one per cent) are not burdened disproportionately.

ICAO has identified measures that can be applied to realising those goals. These include aircraft-related technology development, alternative fuels, improved air traffic management, more efficient operations, economic measures and regulatory measures.

Members asked ICAO to develop the first CO_2 standard for aircraft and a global framework for market-based measures and to explore a global scheme for international aviation. Together, these measures constitute a practical means for addressing emissions from international aviation in a manner compatible with an overall global strategy for combating climate change. As with most of the measures, while ICAO is responsible for international aviation, the measures address domestic emissions from the sector as well.

Among the most promising opportunities for delivering a sustainable future for aviation as a sector are the development and deployment of sustainable fuels. New alternative fuels offer the potential not only to reduce net emissions, but also create new economic and employment opportunities in traditionally non-oil-producing regions.

Commercialisation and production scale-up, due to high costs, still represent the major challenge to the development of a sustainable jet biofuels industry, but ICAO is actively engaged with all major stakeholders to address these challenges globally.

Next steps from the member states

Member states are currently submitting plans that outline their policies and measures to reduce emissions from international aviation. This represents an important interaction between ICAO and its members as each plan will communicate the planned actions and expected results in quantitative terms, marking an important transition to an implementation mode on the environment. To support states in developing these plans, ICAO prepared guidance material, conducted regional hands-on training workshops covering more than 90 per cent of the world's air traffic and is actively working with states.

To achieve the aspirational goals adopted by the assembly, adequate financial resources must remain within the international aviation sector itself, enabling it to respond effectively to the challenges of climate change. Some studies of climate change finance have suggested international aviation as a source of funding at levels disproportionate to the sector's contribution to global emissions. Such a policy would limit the ability of the sector to address its own emissions and could adversely affect demand, thereby reducing the economic benefits that international aviation delivers – a lose-lose scenario.

Significant barriers to imposing a tax on international aviation also exist. Most significant are the more than 4,000 bilateral agreements that exempt international aviation fuels from being taxed. The language in these agreements reflects Article 24 of the Convention on International Civil Aviation (1944) and a subsequent clarifying Assembly Resolution (1999). Amending the Chicago Convention would require the approval of a two-thirds majority of states, in other words the support of an additional 108 countries beyond the G20.

To fulfil its role as a catalyst for economic, social and cultural development, air transport needs to be sustainable. ICAO's vision for sustainable development is a safe, secure, efficient and reliable mode of transport that provides for universal access to low carbon mobility while minimising its environmental impact and maximising its social and economic output. ICAO continues to work closely with its members and international organisations to develop concrete proposals to limit and reduce the environmental impact of aircraft engine emissions, with a view to achieving a sustainable future for international aviation.

Aviation delivers positive, global, social and economic benefits. The G20 can support the essential role of international aviation in global society by considering positions that will help it to develop sustainably. ■

Satellite observations:

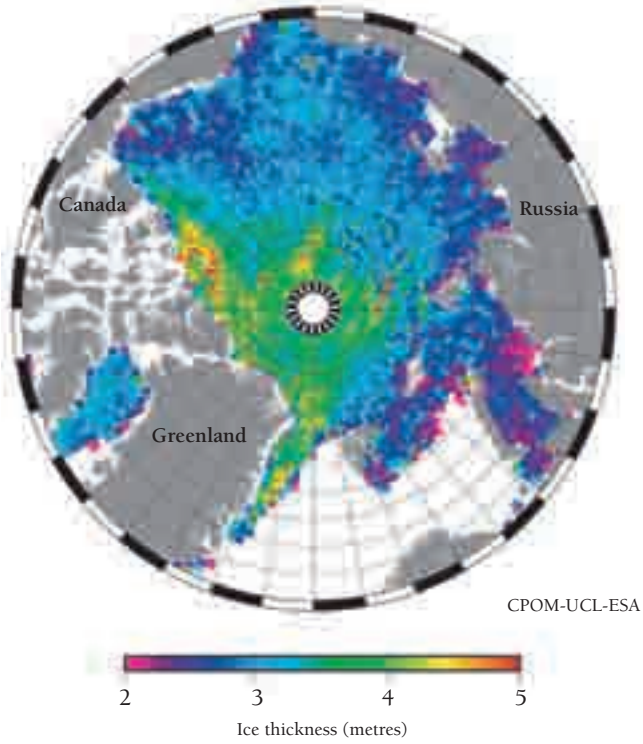
an indispensable tool for international environmental action

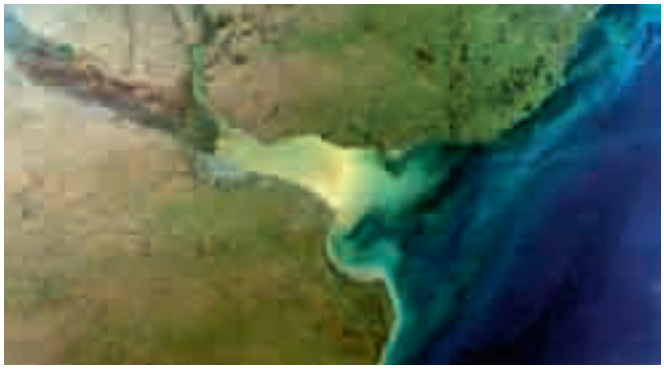
Efforts of the European Space Agency

Never before in history has a species more fundamentally changed the natural environment of Earth: humans are today so profoundly impacting global parameters that science speaks of the anthroposphere, or technosphere, as one of the planet's spheres. International politics has drawn up legal instruments tying state parties together in supporting positive trends and mitigating the negative consequences of human action. The UN Conventions – such as the United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention on Biological Diversity (UNCBD) and United Nations Convention to Combat Desertification (UNCCD) – have become an important aspect of international regulatory force towards more sustainable action. The implementation of these conventions benefits strongly from space technology.

While the impact of human action generally starts on a local level, its consequences can amount to large-scale phenomena which are best quantified and qualified on a global scale with the use of satellites. These steady sentinels in space support a better understanding of the global processes that shape our environment and also our future. The European Space Agency (ESA) is a pioneer in terms of Earth observation satellites. ESA has been instrumental in making meteorology one of the first

Sea ice thickness in Arctic Ocean
(January/February 2011)





ESA's SMOS mission has provided the first measurements of ocean salinity

A fleet of Earth observation satellites is due to launch in the next 10 years

sustainable and operational space applications in Europe, having contributed to the development of the Meteosat missions since the 1970s. The long-lasting ERS-1, ERS-2 missions and Envisat, the world's largest Earth observation satellite ever, have provided an immense amount of valuable research data to more than 4,000 scientific projects worldwide and to service providers every day.

One of the most urgent topics of our time is the understanding of the underlying mechanisms of climatic change, and the contribution of mankind to it. For a sound scientific assessment and extrapolation it is indispensable to look at the state of, and, more importantly, the changes in the Earth's climate which come about as the result of the interaction between various

The implementation of UN Conventions benefits strongly from space technology

components. ESA is developing a fleet of so-called Earth Explorer missions that shed light on open questions regarding these Earth systems. ESA's GOCE mission has reached its ambitious goal of mapping Earth's gravity with unprecedented precision. In March 2011, after only two years, the satellite has collected the measurements needed to record the geoid reference shape of our planet, allowing scientists to create the best-ever model of the geoid. The SMOS mission has delivered the first global measurements of soil moisture and ocean salinity, two key variables in the Earth's water cycle. The first Arctic sea ice variability map, precursor to a 'fever curve' of Earth's climate and based on data from ESA's CryoSat mission, was presented in spring 2012. New Earth Explorers are in the pipeline awaiting launch, such as Swarm to study Earth's magnetic field, ADM-Aeolus for 3-D wind-mapping and EarthCARE for aerosols, cloud and radiation budget monitoring.

Equally important to new observations is the utilisation of many years of archived data sets, their re-processing with the newest scientific algorithms, their comparison and their interpretation. The 'Global Climate Observing System' (GCOS), in the context of the UNFCCC, defined a set of 'Essential Climate Variables' (ECVs), which shall be systematically monitored, in order to quantify the state of our climate in an objective and effective way. In response hereto, ESA has given birth to the 'Climate Change Initiative' which generates, preserves and gives access to long-term data sets for many of these variables.

With a veritable fleet of 20 Earth observation satellites to be launched over the next decade, the ESA is set to continue providing an ever sharper look at the Earth as the cradle of humankind and at the natural and anthropogenic changes it experiences over time, while supporting the international environmental conventions and thus giving decision-makers the tools to respond to the challenges of the 21st century.

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Sustainable development: turning the idea into reality

The scientific knowledge to create a greener world is probably already with us, but the question of whether organisations are sharing it effectively could be one of the hottest topics debated at Rio+20

By Adriana Abdenur, general coordinator, BRICS Policy Centre; professor, Catholic University of Rio de Janeiro

At this point, the single biggest hurdle to sustainable development on a global scale is neither conceptual nor technical; it is institutional. Contemporary societies probably possess the scientific and technological capacity to generate solutions to most of the concrete environmental, social and economic problems faced today, offering alternative paths to development that will use resources more intelligently in the long term. What is lacking is a solid governance system designed to identify innovations, foster new ideas, rally constituencies towards reframed goals and implement solutions on the scale needed to effect real change in a well-distributed manner. A reformed governance system for sustainable development should not only be more representative of the interests and potential of developing countries, but also be firmly embedded within a network of knowledge hubs that foster the production and flow of innovative solutions. Such a system would, in fact, reproduce on a global scale some of the key characteristics of regional innovation systems in places such as Silicon Valley, where interlinked organisations based on a relatively free flow of knowledge generate speedy and cumulative innovations.

The idea of reforming global governance for sustainable development is nothing new. Many expect this to be the most controversial topic at Rio+20. Climate change debates – suffering from acute fatigue within non-specialist circles due to the political imbroglio of the Kyoto Protocol – have been all but left off the conference agenda in favour of the far broader (and, hence, more nebulous) concept of 'green economy' and strategies for poverty alleviation. So far, the governance controversy pivots on the type of global coordinating body that might replace the United Nations Environment Programme (UNEP). Whether a new coordinating institution is formed or UNEP is simply revamped, there is clearly an urgent need for better coordination of efforts that take place at multiple levels and different places among a complex set of actors. Whatever shape that coordinating body ultimately takes, it will not succeed unless it adopts a network approach to innovations for sustainable development.

The current governance system suffers from two interrelated problems: lack of a strong coordinating agency and fragmentation of efforts. As far as institutional strength is concerned, UNEP lacks clout and funding; it has remained relegated to the inferior status (and accompanying resources) of a UN programme rather than a full-blown agency, and suffers from significant replication of efforts and contradiction by other UN bodies. Given the multi-scale, multi-sector nature of sustainability, coordination at a global level requires greater capacity, a broader mandate and funding beyond the voluntary contributions that form the bulk of UNEP's budget.

In addition, and partly as a result of its limited resources, UNEP has remained frustratingly remote from the debates and issues of sustainability. Because of this distance and organisational incoherence, current attempts at coordination have been highly fragmented among a variety of international environmental agencies.

A global coordinating institution thus must be endowed with adequate financial resources to coordinate and execute ambitious programmes, but one that is nested within – and in turn, fuels the expansion of – a strong network of institutions dedicated to sustainable development. Such institutions

Greener ways to generate electricity, as seen by these Bloom Energy servers in Silicon Valley, are developed through organisations pooling their expertise

include not only national governments but also sub-national governments and agencies, civil society organisations, and private sector actors. Many of these are located in the developing world – itself the source of key sustainability solutions yet far too often still viewed as the site of only problems. These actors generate a variety of solutions and social and scientific technologies. Many of the 'social technologies' for sustainable development have arisen out of necessity, improvisation within a context of scarce resources, popular demand and mobilisation, or ingenious policymaking – as is the case with a variety of successful conditional cash transfer programmes, recycling cooperatives and reforestation programmes. Other adaptable models include progressive municipal planning coming out of Medellín, Colombia, and recent efforts to integrate low-income communities into the fabric of the city in Rio de Janeiro, Brazil.

The scientific laboratories of developing countries are frequently overlooked as knowledge hubs, although they produce a variety of frugal yet ingenious solutions. Many of these are devoted to solving problems that afflict precisely those societies most directly, but that to the growing realisation of the rich world, also bear on the well-being and sustainability of industrialised countries.

Indian and Brazilian research centres working on agriculture and biotechnology, for instance, have much to contribute to global food security and public health, but some of these centres remain isolated from international research networks. Any effective coordinating body for sustainable development should work to catalogue these hubs and strengthen the linkages across them.

Building up such a network is a gargantuan task. This is precisely where the G20 could help stakeholders to implement more effective solutions to environmental and social problems around the world. By pooling resources, the group could help reorient global models of development by restructuring institutions and networks so as to improve the flow of innovations and scale up solutions. The challenge of reforming global governance for a network of sustainable development can be broken down into three steps: mapping, linking and coordinating. Mapping involves identifying existing knowledge hubs of universities, agencies, think tanks, research centres and community organisations – which produce and disseminate solutions for sustainable development. The task is more difficult than it sounds, given the high level of fragmentation among institutions working on the gamut of topics that fall under the umbrella of sustainable development and the corresponding low degree of information dissemination. Likewise, such an effort would involve identifying the gaps that need to be bridged in order to strengthen institutions, foster the free flow of knowledge, scale up solutions and help innovations reach the problems for which they have been designed.

Knowledge exchange

Linking involves building bridges across institutions and creating channels to enhance the free flow of knowledge, resources and financing for sustainable development projects. Such linking might involve greater diplomatic efforts and also greater technical, financial and humanitarian cooperation and the implementation of concrete initiatives such as high-speed communications linking different regions of the planet. Ultimately, the focus should be on knowledge exchange rather than on the traditional and tired stripped-down modalities of technology transfer. The goal should be to broaden the field for participation by a wider variety of stakeholders, from governments to non-governmental organisations and private firms.

Coordinating involves facilitating efforts and strengthening the institutional capacity of those knowledge hubs dedicated to sustainable development, so as to make more transparent and effective the necessary tasks across sectors of target setting, project design and implementation, monitoring and evaluation, and dissemination of results. This coordination, like mapping and linking, cannot be effectively implemented without the full participation (in the sense of partnership rather than mere consultative basis) of developing country actors.

As Kofi Annan recently noted, "Our biggest challenge in this new century is to take an idea that seems abstract – sustainable development – and turn it into a reality for all the world's people". Such a reality cannot be divorced from the networks of innovation – actual and potential – that can turn vague terms such as green economy into concrete solutions for sustainable development. ■