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Cover photo: Delegates to the inaugural session of the High-level Political Forum on Sustainable Development (HLPF) arriving in the Trusteeship Council Chamber at UN Headquarters. **Courtesy:** IISD

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ENVIRONMENTAL POLICY AND LAW

This international journal has been created to encourage and develop the exchange of information and experience on all legal, administrative and policy matters relevant to the natural environment and sustainable development. It is concerned in the widest sense with legal and policy aspects of air, water, soil and noise pollution; the protection of flora and fauna; solid waste management; protected areas and landuse control; and development and conservation of the world's non-renewable resources.

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BDITORIAL

In this issue, we continue our reporting on changes taking place within the United Nations following the UN Conference on Sustainable Development (Rio+20). As noted in EPL 43/2, UN General Assembly (UNGA) Resolution 67/251 confirmed the conversion of the 58-member United Nations Environment Programme (UNEP) Governing Council into the universal-membership UN Environment Assembly (UNEA) in which all 193 State Members participate directly. The UNGA also adopted Resolution 67/290, outlining the mandate for the High-level Political Forum on Sustainable Development (HLPF) to replace the Commission on Sustainable Development (CSD), initiating a process closely followed in recent EPL issues.

Following the conclusion of negotiations on the HLPF, the CSD held its 20th and final session on 20 September 2013, under the chairmanship of Bektas Mukhamedzhanov, Kazakhstan's Vice-Minister of Environment Protection. Convening directly under the UNGA, the HLPF then held its inaugural meeting on 24 September. Following organisational elements, the session included an interactive discussion amongst the presidence, prime ministers, ministers, officials and other dignitaries in attendance. From now on, the HLPF will convene ever year under the auspices of the Economic and Social Council (ECOSOC) for eight days, including a three-day priming vial segment. A session for Heads of State and Government will convene for two days every four years under the auspices of the UNGA. The HLPF will also establish a Scientific Advisory Board, which is to be placed within the frame of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Through sound scientific and representation at a high political level, the HLPF has shouldered the task of moving from creation to action and implementing what has been decided. Through its bridging character, the HLPF's purpose is not only to make proposals to the UNGA and ECOSOC, but also to act on the decisions of both bodies. Above all, it is expected make place in late June or early July 2014.

The two four-year terms of Achim Steiner, as UNEP Executive Director (ED), will come to an end at the beginning of next year. The agenda of the 68th session of the General Assembly includes point 115(e) "Election of the Executive Director of the United Nations Environment Programme". This, however, raises a critical question—is this the right time for such a change? Is it the time to change the rider in the middle of the race? With the new membership structure of UNEP and the start of the HLPF, perhaps it is the wrong time to put someone new in the position. When establishing the four-year election cycle of the Executive Director, it was not expected that two new forums, the Environment Assembly and HLPF, would be evolving at the same time. Perhaps it would be wise to postpone the election of a new UNEP ED until the new bodies are well established. We would be in favour of having the present ED stay on through this important transitional period.

1 October 2013



UNITED NATIONS ACTIVITIES

UNGA/HLPF

Sustainable Development at the Highest Level

by Waruna Dhanapala* and Palitha Kohona**

The United Nations Conference on Sustainable Development (Rio+20) required the UN to establish a High-Level Political Forum (HLPF) on sustainable development. In the process, it would also replace the UN Commission on Sustainable Development (CSD). Consultations, cofacilitated by the Permanent Representatives of Brazil and Italy over a period of months, resulted in the UN General Assembly Resolution No. 67/290 adopted by consensus, establishing the HLPF, ensuring universal and intergovernmental characteristics.¹

The HLPF is expected to set its agenda around the social, economic and environmental dimensions of development, drawing on the lessons learnt from the CSD. According to the Resolution, the forum will convene annually for eight days, under the auspices of the Economic and Social Council (ECOSOC). Its thematic focus will reflect the integration of the three dimensions of sustainable development, social, economic and environmental, winkeeping in sight the current work on and under the lost-2015 Development Agenda. A three-day mini, erral segment will be held within the framework of the LOSOC substantive session, building on, and by 2015 replacing, its Annual Ministerial Review (AMR). Further nore, the UN General Assembly (UNGA) decide that a Heads-of-State/Government-level Forum would be held every four years for two days at the beginning of use annual UNGA session, with the goal of producing a concise, negotiated political declaration. The first of these half-day sessions will convene on 24 September 2013.

The need to maintain the universality of the forum, and consistency with the Rio+20 Outcome Document, resulted in this complex organisational arrangement. First, developing countries were reluctant to accept ECOSOC as a universal platform due to its limited membership. The need for a high degree of decision-making capacity was enshrined in order to attract more Ministers and Heads of State/Government. Some of the proposals that appeared in the original draft such as the Senior Officers' Meeting and regional consultations were later reflected in the Resolution as elements of preparatory processes for the Ministerial and higher-level meetings. Member States also agreed that the Forum would operate on the basis of consensus, through an intergovernmental negotiation process.

The Rules and procedures of both the ECOSOC and the General Assembly will be applied when the HLPF meets under these two bodies. The on-going consultations to reform the ECOSOC under another UNGA resolution (Resolution 61/16) will also accommodate the consensus that the Commission should play an active role in the Forum.

Expectations with regard to sustainable development have risen, as the new body is intended to be an improvement over the CSD in the following areas: timesensitive deadlines, decision-making qualifications, procedural protocol and ownership parameters. Developing countries have so called for increases in the levels of support ar 1) source allocation from the UN Secretariat that were previously available only through the CSD. In addition, the most vulnerable countries, including the Least Developed Countries and Small Island Developing States, expressed the desire that the CSD agenda (which included specific themes related to their advancement) would continue uninterrupted under the new Forum. Although They favoured the hybrid format in both the GA and the ECOSOC, it was important to establish a focal point in the UN Secretariat, with proper coordination among the Presidents of these two bodies and the UN Department of Economic and Social Affairs (DESA).

The universality of the forum was a contentious issue. At the time of adopting the Resolution, the G-77 and China encouraged an inclusive decision-making capacity and advocated a stronger institutional framework with respect to sustainability and the Post-2015 Development Agenda.

Some developing countries cautioned against equating sustainable development with the environmental dimension as had happened in the CSD. Maintaining the balance of the three pillars under the HLPF would be rather challenging. However, the framework of the HLPF was eventually built upon the experiences, strengths, resources and inclusive participation of the international community and the UN system that were later acknowledged by Kazakhstan, the present Chair of the CSD.

The developed countries saw the new HLPF as a dynamic venue for productivity and efficiency, calling for fiscal-policy transparency with reference to budgetary matters and negotiation processes. Some of them, though comfortable with the modalities of the HLPF, had concerns over accountability in providing budgetary information.

Developing nations wanted the facilitation of best practices, which includes sharing lessons learnt and identifying key regional challenges in respect of sustainability. System-wide coherence and coordination in strengthening the science-policy interface for sustainability by way of documentation review and data sharing were identified as an integral part of the HLPF. Member States

^{*} Minister/Counselor at the Permanent Representation of Sri Lanka to the United Nations in New York.

^{**} Ambassador and Permanent Representative to the United Nations.

wanted to build upon existing assessments to enhance evidence-based decision making at all levels and continue to strengthen on-going capacity-building efforts. They stressed the accountability of the UN system, encouraging system-wide participation of the UN agencies, funds and programmes, and multilateral environmental agreements, as mandated by the Rio+20 Outcome Document.

The success of the HLPF will depend on it setting the agenda strategically as well as on prompt implementation of decisions, mainly on Sustainable Development Goals (SDGs), expected to be defined by September 2014 under another intergovernmental process. Ensuring the smooth

transition from the Millennium Development Goals to the SDGs under a single, integrated development agenda, dynamic and action-oriented in nature, is also necessary as the new goals of the post-2015 period should be "global in nature, and universally applicable to all countries". Resource mobilisation and capacity building for global sustainability, with adequate attention to the most disadvantaged, especially in developing countries, will be key in this regard.

Notes

1 The post-resolution consultation process was described in *EPL* 43(2): 71, and in *EPL* 43(3): 122–127. Editor.

UN/GA-Marine WG

Agreement on Recommendations

by Palitha Kohona*

The Ad Hoc Open Ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (Working Group) met in New York from 19 to 23 August, 2013. The Working Group, after five days of intense discussions, unanimously agreed to recommend to the 68th session of the General Assembly that it reaffirm the commitment made by the States in "The Future We Want" (Outcome Document of the 2012 UN Conferer ce on Sustainable Development, also known as "Rio+ 0 including by taking a decision on the development of an international instrument under the United Na jons Convention on the Law of the Sea (UNCLQS). Surther recommends that the GA decide to establish a process within the Working Group to prepare to such action. Regarding the commitment of States, oragraph 162 of "The Future We Want" states: "Building on the work of the Ad Hoc Open Ended Informal Working Group and before the end of the 69th session of the General Assembly, we commit to address, on an urgent basis, the issue of the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, including by taking a decision on the development of an international instrument under the Convention on the Law of the Sea".1

The de is on of the Working Group on the recommendations was arrived at after detailed negotiations involving a vide range of countries. The majority, including many from the G-77, the European Union, Mex 30, Australia and New Zealand, supported the General Assembly deciding, before the end of its 69th session, to launch a process that would result in the negotiation of an unplementing instrument under the UNCLOS. However, given the reticence demonstrated by others, an essential first step to such negotiations would be a decision of the Working Group on the scope, parameters and feasibility of such an instrument. For this, the Working Group will hold three meetings of four days each in 2014 and 2015. It was left open to the General Assembly to decide on additional meetings, if needed, and within existing resources. It was also recommended that the co-chairs invite Members States to submit their views on the scope, parameters and feasibility of such an international instrument for circulation in advance as an informal working document.

The Working Group was co-chaired by Liesbeth Lijnzaad, Legal Advisor, the Ministry of Foreign Affairs of the Netherlands and Palitha Kohona, Permanent Representative of Sri Lanka to the United Nations.

UNCLOS/UNICPO-14

Focus on Ocean Acidification

by Ann Powers*

In 1999, in order to facilitate its annual review of developments in ocean affairs and the law of the sea, the

 Associate Professor, Center for Environmental Legal Studies, Pace Law School, White Plains, NY, US. UN General Assembly (UNGA) established an Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPO), tasked with suggesting issues for the UNGA's particular consideration, with a focus on those

Ambassador and Permanent Representative to the United Nations in New York

¹ The draft report of the meeting is available at http://www.un.org/depts/los/biodiversityworkinggroup/documents/AHWG-6__draft_report.pdf.

areas of intergovernmental and inter-agency action where coordination and cooperation should be enhanced (UNGA Resolution 54/33). As part of the process, UNICPO would also consider the Secretary General's annual report on the oceans and the law of the sea. The 14th Meeting of the Informal Consultative Process (UNICPO-14) was held 17–20 June, 2013 at UN Headquarters in New York. It was co-chaired by Don MacKay (New Zealand) and Milan Jaya Nyamrajsingh Meetarbhan (Mauritius). This year's meeting addressed "Impacts of ocean acidification on the marine environment", as directed by UNGA Resolution 67/78.

At UNICPO-14, the level of controversy was low, perhaps in large part because the facts of ocean warming and acidification were so generally agreed upon, and the ultimate issue was not the science, but how to address its unpleasant realities. Early in the meeting, Fiji, speaking for the G77/China, called on participants to focus only on technical issues, and not to encroach on politics, thus avoiding the wrangling that had, in the two weeks before the UNICPO-14 session, stayed the commencement of the work of the UN Framework Convention on Climate Change Subsidiary Body for Implementation.² Although political agreement on the reduction of greenhouse gases (GHGs) remained the elephant in the room, UNICPO-14 participants kept their focus, for the most part, on the science of acidification and the means for dealing with it.

The Pacific Island Forum (PIF) and its members, noting their canary-in-the-coal-mine status with regard to sea-level rise, ocean warming and acidification, stressed the direct threat to coral reefs, the source of a quarter of Pacific Island fisheries. A temperature rise of 2.4°C could cause a me coral reefs to begin to dissolve, suggesting a power. Inceed to find a way to build resilience across whose cosystems. The PIF offered a range of suggestions, including the designation and conservation of marine protected areas. Representing peoples who have literate, been shaped by the ocean, the Forum emphasised that in order for their ways of life to continue, action must be taken today. PIF Member States have already taken a number of actions, including

participation in the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security, but much more must be done. They demanded implementation of paragraph 166 from *The Future We Want* (the outcome document of the UN Conference on Sustainable Development),³ which calls for support to initiatives that address ocean acidification and the impacts of climate change on marine and coastal ecosystems and resources, including enhancing the resilience of marine ecosystems and of the communities whose livelihoods depend on them, and supporting marine scientific research, monitoring and observation of ocean acidification and particularly vulnerable ecosystems.

Increased CO₂ levels in the atmosphere are not only causing the earth and its oceans to warm, but also raising the acid levels of the oceans. The oceans have absorbed 26 percent of anthropogenic CO₂ emitted since the mid-1700s. Thus, ocean acidity has increased by 30 percent since the start of the industrial age and will increase by 100–150 percent by 2100, a rate and magnitude not seen in tens of millions of years. The consequences for marine species, from phytoplanks, a to whales, will be substantial.

The effects of these changes will vary from region to region at en ling upon local conditions, such as geology and fr sh-water flow. Acidification will likely be most felt in Arctic and Antarctic areas since CO₂ is taken up more quarkly by cooler waters, but coral reefs and coastal areas with upwellings of deeper waters will also be significantly impacted. Other calcifying organisms such as oysters and mussels, too, will feel the effects of more acidic waters. A representative of an oyster aquaculture company in the US state of Washington briefed the meeting's participants on the problems with which they were already grappling due to acidification. Notably, he explained that the effects of acidification interfere with larval development and so that water treatment is required during critical periods. The industry has increased its monitoring and research efforts, and is working to develop more acid-tolerant oysters. While the impacts on shellfish may be the most noticeable, many other marine species may also be sensitive to carbonate levels, some positively but others negatively.



Delegates in the UNICPO session

Courtesy: IISD-Earth Negotiations Bulletin

In addition to calcification, other key ecosystem factors are also affected by acidification. Absorption of sound at low frequency, for example, decreases with any increase in acidification, consequently increasing marine noise levels with possible deleterious impacts on whales and other large cetaceans.

Damage to fisheries is of special concern, owing to its economic consequences in the form of trade and job losses. Tourism can be similarly affected, particularly in areas where coral reefs are an attraction, and ecosystem changes can increase storm damage. In many such areas, increasing acidification is only one of many stressors on coastal systems.

The International Atomic Energy Agency (IAEA) made a particularly interesting presentation to the group. Although IAEA is not an organisation which immediately springs to mind in discussions of ocean acidification, its research interests in nuclear monitoring techniques led it to launch, at the instigation of the scientific community, an Ocean Acidification International Coordination Centre at Rio+20. This Centre, based at the IAEA's Environment Laboratories in Monaco, is supported by eight IAEA Member States (Australia, France, Italy, New Zealand, Norway, Spain, UK and USA), and provides a mechanism for information exchange and collaboration across the range of ocean acidification issues.

Overall, the science of acidification is relatively simple chemistry, but its impacts are not so clear. A number of computer models exist, and scientists report that the models and observations agree extremely well in the accessible parts of the open ocean. However, uncertainties are bight

with respect to deeper waters, and in coastal waters, where local conditions may vary.

In the face of such a dire situation, and with dim prospects for achieving the necessary emission reductions, attention focused on what could be done in the short term to address the problem. In general, it was agreed that States must identify areas where systems such as coral reefs are most vulnerable and where humans are most dependent on those systems in order to determine the areas of greatest risk. Coral restoration and transplanting should be considered. Adaptation is critical. Safe and sustainable fishing should be encouraged, compatible coastal development pursued, and ecosystems protected, especially through the use of marine protected areas. As one participant noted, investment in ecosystem health and resilience will buy us time.

UNICPO-14 concluded with a review and comment session discussing the co-Chairs' Summary of Discussions, to be completed by the co-Chairs and forwarded to the General Assembly. Hopefully these discussions will lead to increased e. orts to address the effects of ocean acidification. As one meeting participant stated, "The fact that enough contributes are having nightmares about ocean acidification means it's time to act". Indeed, it may be well beyond that time.

Notes

- For further background see "A Brief History of the Law of the Sea and Consultative Process", *Earth Negotiations Bulletin* at http://www.iisd.ca/ownload/pdf/enb2589e.pdf.
- 2 See Fry, I. "Climate Change Talks Stutter in Bonn", on page 185 of this issue.
- 3 Discussed in EPL 42(4-5): 239–40.

Celebrating John Alan Beesley



L-R: Jonathan Irwin, Executive Director of the Maritime Museum; Ruth Lechner Beesley; and Barry Rolston, Chairman of the Board of the Museum

Courtesy: Ruth Lechner Beesley

A plaque commemorating the late ICEL Member J. Alan Beesley (1927-2009) and his work on the United Nations Law of the Sea Treaty was formally unveiled on the exterior of the Maritime Museum of British Columbia on 5 June in Victoria (Canada). As Ambassador to the United Nations Law of the Sea Conference, Canadian Head of Delegation and Chair of the Conference Drafting Committee, Beesley was instrumental in shaping the negotiating process and the final treaty signed in 1982.

UNFCCC/Subsidiary Bodies

Climate Change Talks Stutter in Bonn

by Ian Fry*

The 38th sessions of the Subsidiary Body for Implementation (SBI-38) and the Subsidiary Body on Scientific and Technological Advice (SBSTA-38) of the UN Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol met somewhat inauspiciously in Bonn from 3-14 June. A resumed second session of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) was also held concurrently with the two Subsidiary Bodies. Unfortunately, the meeting was beset by an SBI agenda dispute, initiated by the Russian Federation, Belarus and the Ukraine, who sought to add an item to the agenda – a desire not supported by most of the Parties. As a consequence, the agenda could not be adopted and the SBI did not meet. A discussion on the underlying elements to this debate is included at the end of this article. Despite this hiccup, the two other meetings were able to go forward: SBSTA adopted its agenda without incident and proceeded with its deliberations, and the resumed session of the ADP continued from where it left off in April.1 The gathering was also the venue for a series of workshops and forums leaving most delegations with a full timetable, even without SBI sessions.

Subsidiary Body on Scientific and Technological Advice (SBSTA)

The SBSTA made significant progress on a number of agenda items, including on reduction of emissions from deforestation and forest degradation, reporting guidelines for Annex I Parties to the Kyoto Proceed and market and non-market approaches. Nevertheless, some issues proved to be too difficult to resolve.

Emissions from Deforestation and Forest Degradation

On the reduction of emissions from deforestation and forest degradation (REDD+), SBSTA was able to agree on a series of draft decisions to propose at the next Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) in Warsaw later this year: on modalities for national forest monitoring systems; on the timing of information on how safeguards will be addressed; on the drivers of deforestation and forest degradation; on modalities for measuring, reporting and verifying REDD+ actions; and on the technical assessment of submissions of proposed forest reference emission levels. The draft decisions on safeguards and on drivers of deforestation and forest degradation are quite short. It appeared that many rainforest nations were reluctant to go into any detail on these issues, which they appeared to believe would create

impediments to concluding financial arrangements for REDD+.

Many rainforest nations, some developed-country Parties and some international conservation NGOs seem keen to develop a new carbon-market mechanism for REDD+. How this mechanism will operate remains to be seen. Some perceive the REDD+ market mechanism as an expanded Clean Development Mechanism (CDM), where emission reductions in developing countries will be



Cristina Figueres, Executive Secretary of the UNFCCC

Courtesy: IISD-Earth Negotiations Bulletin

offset against emission reduction targets set in developed countries. Others believe that some developing countries will set their own emission reduction targets or pledges and sell excess reductions through a new emissions trading system established under the Convention. There are many pros and cons to such arrangements, given the current weakness of existing carbon markets. Furthermore, the emission reduction pledges presently on the table could indicate that an increase in carbon offsets will evoke little increase in the ambition to reduce overall GHG emissions.

Drivers of Deforestation

During the closing plenary of SBSTA, Tuvalu, supported by the Philippines, made an interpretive statement indicating that a decision recommended by SBSTA on drivers of deforestation and forest degradation contains an ambiguity. Specifically, the preamble may give rise to the suggestion that indigenous peoples undertaking traditional livelihood practices may be contributors to deforestation and forest degradation. Tuvalu called on Parties to revisit this phrasing, to resolve this ambiguity.

Another unusual aspect of that decision was its brevity. It contains only five operative paragraphs with little direction on how they will be addressed. It could be argued, however, that unless UNFCCC Parties develop effective measures to address the drivers of deforestation and forest

^{*} Pacific representative to the UN; member, International Council on Environmental Law; regular contributor to EPL.

degradation, the whole programme will essentially be ineffectual. Possible outcomes might include REDD+ decisions to set aside pockets of rainforest, applying a variety of funding arrangements, but it is equally possible to see an overall acceleration of deforestation and forest degradation in other locations. The demand for the commodities that drive deforestation such as timber, sugar cane, oil palm, beef, soya beans and mineral extraction could certainly increase, if not addressed. The displacement of deforestation from one location to another (a concept known as "leakage") could easily become the Achilles heel of the whole REDD+ system. Many hopes focus, however, on the belief that the market for REDD+ will generate sufficient funds to counterbalance the drivers of deforestation. One thing is certain - there will be clear winners and losers in this carbon-market gamble. Whether the atmosphere sees a benefit remains to be seen.

Reporting Guidelines

SBSTA undertook substantive work to revise the reporting guidelines for annual inventories by Annex I Parties (developed countries listed in Annex I to the UNFCCC). Perhaps the most interesting aspect of the discussion related to the functioning of expert review teams established to review these annual inventories. There was considerable discussion over the composition of these teams - whether they should continue to be composed of volunteers taken from a roster of experts, or should be contract reviewers with some provisions for fees. SBSTA participants also discussed the changes needed with regard to work under Articles 5, 7 and 8 of the Kyoto Proceed in order to coordinate with the changes arising from the establishment of the second commitment period One sint of contention brought forward by St Lucia on a balf of the Alliance of Small Island States related to the EU, and whether its members would need to report eparately on certain factors or would net out their to, together as a collective Party to the Kyoto Protocol. The EU appeared to support the latter option, enabling "internal adjustments" within the Union that are not reported outside the collective report. This issue was not resolved and will be addressed in SBSTA-39.

To change reporting requirements to accommodate the second commitment period of the Kyoto Protocol, SBSTA was required either to considerably amend its existing decisions or to adopt a large omnibus decision encompassing all the necessary revisions. Various tables were produced to try and track all the necessary changes. The revision issues, particularly the treatment of a State's carry-over of assigned amount units (AAUs)² into the next commitment period (described in more detail below), were intensely contended between developed and developing countries. At the heart of the debate was the level of transparency that would apply to the carry-over process. Contention over this issue also underpinned the agenda debate in the SBI (discussed below).

There was even less progress with regard to the guidelines for domestic measurement, reporting and verification of domestically supported nationally appropriate mitigation actions by developing-country Parties. In this context, the phrase "nationally appropriate mitigation actions" was coined in CoP-13 in Bali (2007), which called for stronger actions by developing countries to reduce their emissions. Some see this phrase as a stepping stone to legally binding emission reduction targets for developing countries, while others see these discussions merely as voluntary pledges to take action.

Market and Non-market Approaches

In its discussions of the elements of new approaches for the carbon market, SBSTA's work fed directly into the ADP (discussed below). This discussion was divided into three sub-themes: a framework of various approaches, a new market-based mechanism and non-market-based approaches. The framework of various approaches is a collective term used to describe efforts to find a mechanism linking all of the extant (national and sub-national) carbon trading schemes around the globe. SBSTA's work focused on assessing whether a common set of standards for monitoring, reporting and verification could be found. If so, a means for incertrading or fungibility between the schemes would be beneficial. In this extremely complicated discussion, BoTA was not able to make much progress. It becan be evident that, although some Parties are quite advanced in their thinking on this issue, there is a great need to get everyone else up to speed. Levels of understanding vary, and even among the *cognoscenti*, there were multiple visions of what a new market-based mechanism of this type would look like. Some suggested that it would be an expanded CDM-like offset mechanism while others suggested a new emissions trading scheme that would incorporate limits on emissions that were set by developing countries. Within this discussion, the role of REDD+ was also unclear.

Equally perplexing was the concept of "non-market-based approaches". While most countries see some validity in these, they are certainly not receiving the level of attention currently given to market-based approaches. To try and resolve some of these complexities, the co-chairs of each of the three sub-thematic groups posed a number of questions on which they requested that the Parties provide submissions in the lead-up to the next session in Warsaw.

Land Use, Land-use Change and Forestry

SBSTA also visited the issue of land use, land-use change and forestry (LULUCF) under the Kyoto Protocol. Parties launched a long conversation on expanding consideration of LULUCF activities from what is generally called an "activity-based approach" to a "land-based approach". In effect, accounting for LULUCF would be based on accounting for all land-based vegetative carbon rather than selecting specific activities (e.g., reforestation) to account. This discussion will necessitate a long conversation, given that the rules for the Protocol's second commitment period have already been agreed, locking in the activity-based accounting approach until at least 2020. For some Parties, this discussion was clearly used as a means of circumventing discussions on LULUCF in the ADP, although SBSTA had no such mandate. The Russian Federation, Japan and Canada all appeared very

attentive in these LULUCF negotiations, even though each has openly stated that it will not be a Party to the second commitment period of the Kyoto Protocol. SBSTA also had a brief discussion on the inclusion of additional LULUCF activities in the CDM for the second commitment period and pondered briefly over the issue of additionality in this context.

Struggles within SBSTA

SBSTA struggled to come to any meaningful conclusions on a number of issues, including agricultural emissions – a very sensitive issue. Some Parties are concerned that this agenda will be used as a means to create non-tariff barriers to the international trade in agricultural products. Perhaps wisely, the SBSTA chose a less controversial pathway and focused its attention on scientific knowledge relating to enhancing adaptation measures for agriculture. As usual with regard to controversial issues, SBSTA's recommendation focused on holding a workshop to discuss this issue further.

A similarly "untouchable" issue related to emissions from international transport. The Parties were significantly divided over the means and necessity of addressing these emissions. In the end, all SBSTA could agree to do was to welcome the reports of the International Civil Aviation Organization and the International Maritime Organization and to delay further consideration of the issue until its next session.

Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP)

The ADP resumed its work, taking up where neleft off in late April. The session broke into the same two workstreams used previously, each including a variety of discussion formats (plenary session), workshops and roundtables).

Work Towards a Legal Agreement

Workstream I focused on developing a new legal agreement to follow the Kyoto Protocol. In this context, a number of Parties put forward proposals relating to responsibility for mitigation action. Some spoke about an "equity reference framework", whereby the criteria for setting responsibility for action would be based on an equitable allocation of responsibility. Parties also discussed the so-called "Brazilian Proposal" which would assign mitigation responsibility based on a calculation of historical responsibility. Others suggested a bottom-up approach, that would depend on each country's national circumstances.

Accounting responsibility was another key element of this thematic discussion. To some countries, mitigation accounting by developing-country Parties should depend on the level of financial support provided by the developed countries. One Party suggested a system of measuring, reporting and verification of financial support as a means of ensuring transparency. Most developed-country Parties suggested that financial support must be accompanied by something more than accounting -i.e., by real mitigation action by recipient countries.

In a similar discussion of review processes, some delegations suggested that both an *ex ante* and an *ex poste* review process should be established, to assess the emission reduction targets set by countries. Here also, some suggested that the review of emissions would be matched with the provision of financial assistance. Another suggestion proposed that the rules established for the Kyoto Protocol form the basis for accounting under the new agreement.

Increasing the Level of Pre-2020 Ambition

The need to make mitigation pledges or targets more ambitious was the primary theme of the ADP Workstream 2. Parties heard a summary of an "Emission Gap Report" submitted by the United Nations Environment Programme (UNEP). This report highlighted the notion that the pledges made by Parties in the UNFCCC CoP-16 in Cancún (2010) will not be sufficient to hold the rise in global atmospheric temperatures to the agreed target of less than 2°C (average) over pre-industrial levels. Some developingcountry Parties Lighlighted the responsibility of the developed world for taking greater action. The discussion focused on cess, including the need for new mitigation pledge increasing the ambition of existing pledges and scaling up various actions to reduce emissions. Others su, rested more focused actions including phasing out fossil fuel subsidies, promoting renewable energy and energy efficiency, developing/adopting means to address hydrofluorocarbons, supporting technology transfer, and the development of low-carbon strategies for all countries. Here also, the issue of finance for developing countries was a major focus.

In the end, the ADP concluded that it would hold at least one session in 2014 and requested submissions from Parties and observers on activities within its work plan. With a target date of 2015 for a new legal agreement, the ADP will need to accelerate its work and move into a more focused negotiation process if it is going to meet this deadline.

The Dispute in the SBI – a Matter of "Hot Air"?

As noted above, the SBI's work was entirely prevented by disagreement over the proposal to add a new item to the agenda. This addition, proposed by the Russian Federation, Belarus and the Ukraine (the "G3"), was entitled "Procedural and legal issues related to the decisionmaking by the Conference of the Parties and the Conference of Parties serving as the meeting of Parties to the Kyoto Protocol". The context for this additional item harkened back to the closing plenary of the 8th meeting of Parties to the Kyoto Protocol (CMP-8) in Doha last December. When that meeting's final decision for the adoption of Protocol amendments was presented to the plenary, the President of the meeting, Abdulla bin Hamad Al-Attiyah, Deputy Prime Minister of Qatar, announced adoption of the amendments, without asking whether there were any objections. The G3 had apparently raised their country nameplates to object to the final conclusions, but either were not seen or were ignored. As a consequence, the G3 sought a discussion in SBI about the procedural correctness of the adoption of that decision.

The issue raised by the G3 was clearly one of concern. CMP-8 was not the first time that a Party had been ignored in a final plenary. In 2010, Bolivia's rejection of the conclusions of CoP-16, too, was overlooked. Some suggest that the final plenary haste, evidenced in both meetings, is a response to the 2008 rejection of the "Copenhagen Accord" at CoP-15, brought on by a last-session objection by a small group of Parties. Others opine that they were oversights by CoP presidents unfamiliar with UNFCCC procedures. A statement sent to the UN Secretary General by the Permanent Mission of the Russian Federation (the "Russian statement", later circulated by the UNFCCC Secretariat), attributes responsibility for this procedural failure to the Secretariat of the UNFCCC. During the opening plenary, most Parties expressed sympathy for the concerns of the G3, but nevertheless were concerned about how this issue should be addressed. It was not clear that the SBI had the necessary legal authority to address such issues, unless referred to it by the CoP. Furthermore, under the rules of procedure, late-submitted additional agenda items can only be considered if they are urgent.

These technical approaches were also reflected in the Russian statement, which claimed that the amendment to the Kyoto Protocol relating to Article 3.7 had not been circulated six months in advance as required by Protocol Rules of Procedure, although a form of the amendment (whose wording was later altered) had certainly been circulated earlier. The Russian statement also suggested that the amendments proposed in Doha went "beyor'd to limits of regulation permissible under" the mandar's vincer which the amendments were prepared - a mandate that focused on Article 3.9, as noted previously by a number of developing-country Parties. Arguably, the fact that the G3 participated in the negotiation process has been of these concerns suggests at least some level chacit approval of the process. Moreover, prior to CMP-8, various senior officials of the Russian Federation had already made public statements suggesting that their country would not be a Party to the second commitment period of the Kyoto Protocol – a fact that gives rise to the possibility that this dispute was focused on justifying the country's withdrawal rather than creating a basis for its continued participation.

More specifically, the G3's objection in CMP-8 focused on provisions that would limit the amount of AAUs that a Party could carry over from the first commitment period to the second commitment period, a long-standing dispute, particularly between Western and Eastern European countries. For the Western European countries and others, beyond-target emission reductions achieved by a number of eastern European States were perceived to be a result of the economic decline as a result of the fall of the Soviet Union. Inefficient, GHG-emitting factories were closed down. Other countries argue that the emissions reduction resulted from changes in these countries' economic circumstances, irrespective of their obligations under the Kyoto Protocol. Sometimes referred to as "hot air", these emission reductions have been a focus of discussions regarding elimination of ineffective first-commitmentperiod elements in designing the second commitment period.

Conversely, the countries that suffered post-Soviet economic decline have viewed these carbon credits as part of their economic recovery. They note that several Western European countries have experienced similar benefits. The unification formany also resulted in the production of "hot air" due to the closure of inefficient factories in the East, while the United Kingdom gained "hot air" from the Cosure of coal mines and power production in the "Thatcher period". Neither were intended as means of meeting Kyoto obligations.

Despite various efforts by the SBI Chair, Tomasz Chruszczow of Poland, to hold bilateral negotiations and convene a "friends of the Chair" group to resolve the agenda dispute, the Parties could not agree on a way forward, and the SBI agenda was never adopted. Whether the same agenda dispute will be repeated at SBI-39 in Warsaw remains to be seen. Most are hoping that this issue can be resolved quickly and amicably, and that the now overloaded SBI move forward on its tasks without delay.

Notes

- 1 See EPL 43(3): 127-129. Ed.
- 2 Under the Kyoto Protocol, allowed emissions are divided into "assigned amount units" (AAUs), which form the basis for emissions trading, that in turn enables countries to continue to develop, even where their national commitments would otherwise prevent them from adding new emitting facilities. Ed.
- 3 Supra, note 1. Ed.

UNEP/GC-27

A Perspective on Global Law and Governance

by Alfred Rest*

By its Decision 27/9, "Advancing justice, governance and law for environmental sustainability", the UNEP Governing Council/Global Ministerial Environment Forum

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in February 2013 has stressed again, *inter alia*, the importance of the implementation of the rule of law² (internationally as well as nationally), of effective governance, and of an independent judiciary and judicial process which are vital for the development and enforcement of environmental law. It further demands enhanced international, regional and

sub-regional cooperation to "combat the noncompliance with environmental laws, including, *inter alia*, measures to increase the effectiveness of administrative, civil and criminal enforcement mechanisms, institutions and laws in the field of the environment".

As the Decision deals with very complex and multifaceted topics, only some aspects can be addressed here. In general, the Decision's appeal is very laudable and welcome but, as a prerequisite for procedural enforcement, it lacks the necessary/sufficient basis found in international and national substantive laws and rules. At present, some States have not yet established or developed the national substantive and procedural law that is a primary step in this process. With regard to transnational crimes or "delicts", it is necessary in each case to determine the applicable law, by identifying qualifying norms, for instance, which are used in international private law too. When a sufficient set of regulatory instruments does exist, the State itself has to control and guarantee the implementation and enforcement according to the national rule of law. The primary challenge at present is that very often States do not meet this obligation. Moreover, as evidenced by practice to date, the State community or a single State will be very reluctant to bring a failing State before an international dispute resolution institution, for reasons of political expediency.

This issue has already been addressed in guidance documents. For example, the development of national environmental law is addressed in the UNEP "Guidelines for the Development of Domestic Legislation on Liability Response Action and Compensation for Damage Caused by Activities Dangerous to the Environment". The "Guidelines for the Development of National Legislation on Access to Information, Public Participation and Access to Justice in Environmental Matters of 2010".

Decision 27/9 also notes the next to strengthen "cooperation in combating transnational ganized crime in all forms and manifestations". In this connection, it urges Member States to consider addressing "transnational organized crimes that have a significant impact on the environment, including trafficking in endangered species of wild fauna and flora". Does this formulation suggest that the idea of "international crimes against the environment" should be revitalised?

For a better understanding, it may be recalled that early drafts of the International Law Commission's (ILC's) Draft articles on State responsibility, included, as Article 19(d), a definition of the term "serious breach" (in essence the above concept of "international crime") that included "a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment, such as those prohibiting massive pollution of the atmosphere or of the seas". This Article was not accepted into the final text of the "Draft articles on Responsibility of States for Internationally Wrongful Acts" (herein "Draft Articles on State Responsibility"), as adopted by the ILC in August 2001.6 After long and controversial debates within the ILC, that article was deleted, as it had the potential to destroy the project as a whole. The structure of an individual-oriented criminal law approach did not fit with a State-related responsibility discussion. In the end, therefore, a "de-penalization" of State responsibility was generally welcomed. Similarly, in the deliberations relative to the creation of the Rome Statute of the International Criminal Court (ICC),⁷ the large majority of States wanted to limit the jurisdiction of the ICC to the core crimes mentioned –genocide, crimes against humanity, war crimes, crimes of aggression – and refused to include the so-called "treaty crimes". As evidenced by the ICC's war-crime cases, *e.g.*, the Tadic and Milosevic prosecutions, it appears inadvisable for the time being to apply the model of "crimes against humanity" as an approach to environmental crimes. Responsibility under individual criminal law is, by its very structure, too different from State responsibility/criminality.

Regarding the international delict of damaging or endangering the environment by engaging in or permitting harmful activities, the various legal mechanisms of prevention, omission and compensation developed by the Draft Articles on State Responsibility and the Draft Articles on State Liability, respectively, should be implemented and applied by "tates. In particular, in cases where international legal interests, goods of the community or "global and man ons" are concerned, the mechanism of "erga omne, obligation" could be invoked by the injured State or a third State according to Articles 42–48 of the Draft Articles on State Responsibility. Bringing such cases under judicial control and dispute resolution is the right step, if one seeks to make environmental principles and regulatory instruments into effective, enforceable law.

In the past as well as in the present, States refuse or are reluctant, for reasons of political expediency, to commence international litigation. Instead, they have left the burden of filing lawsuits against the responsible State or private parties and groups on the shoulders of the injured individual victims. By changing this mentality and by further developing soft law into hard law, it could be possible to promote the development of new binding international law. Customary law, too, could be effectively implemented and applied.

Procedural instruments of international judicial control are another key issue. In this context, the longstanding question of whether a new independent international environmental court can and/or should be instituted arises once again and depends on the will of the State community. The multifaceted approaches to the role and appropriateness of the various existing courts on the international and national level need not to be repeated.¹⁰

The importance of national criminal, private and public law, including administrative law, is well accepted and not in doubt. Nevertheless, it needs further development, by more concrete and special prescriptions.

Notes

- 1 Available online at http://www.unep.org/gc/gc27/docs/Decisisions_adopted_by_the_first_universal_session_%28advance%29.pdf. Text printed in *EPL* 43(2): 119–120.
- 2 Regarding the details of the UN/GA programmes and activities, see Rest, A. 2010. "The Programme on the Rule of Law". $EPL\ 40(2-3)$: 90–93. See also "The Rule of Law at the National and International Levels: ICEL Statement". $EPL\ 40(2-3)$: 130–132.
- 3 See Rest, A. 2010. "State Responsibility/Liability: *Erga Omnes* Obligations and Judicial Control". *EPL* 40(6): 298–307, at 305–306.

- 4 $\,$ See Tomuschat, C. 1996. "Crimes against the environment". EPL 26(6): 242–243.
- 5 Yearbook of the International Law Commission. 1980. Vol. II, Part Two, pp.30–63, at 32. [See also footnote 651 to the final version of the Articles (infra, note 6) on the (still relevant) deleted definitional clauses. Ed.]
- 6 Report of the ILC on the Work of its fifty-third session. UN GAOR, 56th Sess. Supp. No. 10, p.43, UN Doc. A/56/10 (2001). For further details, see Crawford, J. 2003. The International Law Commission's Articles on State Responsibility Introduction, Text and Commentaries. Cambridge: Cambridge University Press. [The final version of the draft articles does not define a "serious breach by a State of an obligation arising from a peremptory norm of international law", except by saying that "[a] breach of such an obligation is serious if it involves a gross or systematic failure by the responsible State to fulfill its obligation". Article 40, Final Draft Articles on Responsibility of States for Internationally Wrongful Acts. 2001. Online at untreaty.un.org/ilc/texts/instruments/English/commentaries/9_6_2001. pdf. Ed.]
- 7 The Text of the Statute of 17 July 1998 is published in Rosbaud, C. and Triffterer, O. (Eds) 2000. *Rome Statute of the International Criminal Court.* Baden-Baden: Nomos Publishing Company. [It is also online at untreaty.un.org/cod/icc/statute/romefra.htm. Ed.]
- 8 Cf. Triffterer, O. (Ed.) 1999. Commentary on the Rome Statute of the International Criminal Court, Observers' Notes, Article by Article, Annotation to Art. 5, at 98. Baden-Baden: Nomos Publishing Company.
- 9 See *supra*, note 3, the cited article in which provides a detailed survey of this instrument.
- 10 Regarding national and European jurisdiction in environmental matters and judiciary by ICJ, ITLOS, ECJ, ECHR, ICC and PCA, see Rest, A. 2008. "Access to Justice in International Environmental Law for Individuals and NGOs: Efficacious Enforcement by the Permanent Court of Arbitration". In: Postiglione, A. *The Role of the Judiciary in the Implementation and Enforcement of Environmental Law.* Bruxelles: Bruylant.

Montreal Protocol/OEWG-33

Exemptions, Guidelines and Amendments Considered

The Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (OEWG) held its 33rd meeting¹ in Bangkok, Thailand from 24-28 June 2013, in which it undertook the expert discussions and analysis necessary in order for the Parties to come to the highly technical decisions that will be necessary at the 25th Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer to the Vienna Convention for the Protection of the Ozone Layer (MoP-25). The Protocol provides the technical analysis and agreements by which the Parties are fulfilling their commitments under the Vienna Convention to decrease and eventually eliminate their use and production of ozonedepleting substances (ODSs). It does this by specifically listing ODSs, and either banning or providing tandards for the phase-out of the production and use or the substances. Each MoP considers listing, banning and standards decisions, as well as exceptions and exemptions where a country cannot meet the ban or standards without causing certain types of harm to itself and its citizens.

The OEWG's task is to examine the decisions that the MoP will be called upon to make, identifying areas in which information is incomplete, agreement is not necessarily expected or technical analysis is not uniformly accepted. Through this process, which is far more technical than political (in contrast to the parallel institutions under many other instruments), the OEWG is able to provide the real support needed that enables the MoP to come to final agreement on the various issues before it, in the time available to it. It is possible that this system's effectiveness is one of the reasons that the Montreal Protocol remains the only multilateral environmental agreement with universal membership. At a minimum, as was noted by Marco González, Executive Secretary, Ozone Secretariat, the Montreal Protocol is a model for international cooperation and an efficient instrument for protecting the atmosphere.

Under the guidance of Co-Chairs Patrick McInerney (Australia) and Javier Camargo (Colombia), OEWG-33's work this June included discussion of a proposal to amend

the Protocol, 'n addition to the more standard discussions of reports, so id, ines and exemptions.

Proposar to Amend the Protocol

the most controversial issues before the MoP and OEWG in recent years has focused on the relationship between the international framework for ozone protection and the framework for addressing climate change. Although many attribute political motivations as the true reason for these discussions (e.g., the desire to outflank work done under the UN Framework Convention on Climate Change (UNFCCC)), they have been put forward in the form of technological advances, prompting the need to consider them in the OEWG. Most recently, these efforts have taken the form of proposals to amend the Montreal Protocol to include commitments to reduce the production and consumption of hydrofluorocarbons (HFCs), a greenhouse gas addressed under the UNFCCC that does not qualify as an ODS. Introduced by the US, Canada and Mexico, the proposed amendment includes "phase-down" (specifically not "phase-out") schedules for HFCs that would, according to its proponents, result in significant reductions (more than 90 gigatonnes CO₂ equivalent), while preserving the legacy and drawing on the expertise of the Protocol. These presentations emphasised the understandable pride that the delegates have in the achievements of the Protocol, while understating the converse point – that the proponents are not anxious for the UNFCCC to impose more concrete, more immediate and more onerous reductions.

Discussions on this topic ranged from the technical through the practical and into the political. One oft-expressed position related to coordination, including, at the strongest, the position that the Montreal Protocol should wait for a request from the UNFCCC, before formally considering a decision to take on this work. Trumping the statement that the proposed amendment's purpose was to take advantage of the Montreal Protocol's "expertise", Brazil (among others) is reported to have said that it would be premature to consider addressing HFCs unless and

until new and additional funding is provided or concretely promised to the Protocol to address these matters.

Eventually, a formal Discussion Group on HFC Management (rather than "on the amendment proposal") was formed, which considered a range of issues. It began with the essentially legal discussion of the basis on which the Protocol could be utilised to address HFC issues, with particular attention to the relationship between the Montreal Protocol and the UNFCCC (Convention and Kyoto Protocol). The group went on to discuss HFC alternatives and technology-transfer issues. The financial issue was also canvassed, ultimately including a call for the Technology and Economic Assessment Panel (TEAP) to prepare economic and cost assessments regarding the proposed phase-down. Within the group, there were also suggestions of a "trial period" during which the Parties could see whether and to what extent the Montreal Protocol's work on a phase-down of HFCs would be beneficial to both instruments, their Parties and the environment. Ultimately, the Discussion Group was not able to agree on any of the matters that it discussed, but provided a full report of its discussions to be forwarded to MoP-25, with the proposed amendments in square brackets (indicating non-agreement).

Although the discussions did not result in any concrete indication of agreement on concept or text, it is appropriately cited as progress, given that it is the first time that any Montreal Protocol body has been able to hold "formal" discussions of the issue and establish a formal discussion group on it, rather than ultimately shunting the matter over into "informal discussions" as it has always had to do in the past.²



L-R: Megumi Seki, Secretariat, and OEWG-33 Co-Chairs Javier Camargo (Colombia) and Patrick McInerney (Australia) Courtesy: Earth Negotiations

Current Status of Protocol Objectives

At present, most of the listed ODSs are past their phase-out dates. These include, for developed countries (formally known under the Protocol as "non-Article 5 Parties"), halons, chlorofluorocarbons (CFCs), carbon tetrachloride (CTC), hydrobromochlorofluorocarbons, methyl chloroform, bromochloromethane and methyl bromide; and for developing countries ("Article 5 Parties"), hydrobromochlorofluorocarbons, bromochloromethane, CFCs, halons and CTC.

A few phase- outs are still on-going. While developing countries are still permitted to use methyl chloroform and

methyl bromide, they are supposed to phase out production and consumption by 2015. In addition, developed countries were to have frozen production and consumption of hydrochlorofluorocarbons (HCFCs) in 2004, and are expected to phase them out by 2020. Developing countries must freeze HCFC production at current (2013) levels, and phase it out by 2030.

As discussed below, the phase-out requirements are subject to limited essential-use (for CFCs) and critical-use (for methyl bromide) exemptions, based on each country's ability to claim and prove a lack of feasible alternatives to the specified ODS in a specified use.

Technical Committee Reports

One of the most important tasks of the OEWG is a pre-MoP review of the contents and adequacy of the reports of the technical committees that have been established under the Protocol. These include the TEAP and a variety of committees established within it to address particular ODSs and their uses, e.g., the Medical Technical Options Committee (MTC2); the Chemicals Technical Options Committee (CTOC); the Foams Technical Options Committee; the Methy Bro nide Technical Options Committee (MBTOC); the MBTOC's Sub-committee on Quarantine and Pre-Sh. ment Issues; and the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee, all of which reported to OEWG-33.

Consideration of these reports provided an inventory of some of the concerns that would arise in the form of exemption requests. For example, one of the issues addressed by the MTOC was the necessity of "metered-dose inhalers", a medical product that involves CFCs. While the final uses of CFCs for this purpose are still ongoing in Russia and China, their last two years of exemption for the transition to CFC-free inhalers are expected to be supplied from pre-phase-out CFC stockpiles in China.

In discussion of the work of the CTOC, it became clear that there is some disagreement regarding the environmental soundness of one chemical that has been proposed as a substitute for a listed ODS.³ In addition, the EU has asked the Committee to clarify the criteria by which it determines which chemicals are "process agents" used in particular production processes. This inquiry may indicate a potential challenge to CTOC analyses involving chemicals like CFCs that are well past their phase-out dates.

Exemptions

Standard practice that has developed under the Montreal Protocol is for countries to nominate particular uses within their oversight for exemptions under Article 2 of the Protocol.

Essential-use

OEWG considered nominations for "essential-use exemptions" from the ban on use of CFCs, focusing in particular on the above-mentioned continued use of CFCs in the production of metered-dose inhalers in China and Russia. Although both countries were cited for their progress toward phase-out (conversion to CFC-free

inhalers), their request for continuation of their respective exemptions drew comment, and led to intensive discussion. Ultimately, the Group bracketed the exemption request within the proposed decision that it forwarded to the MoP, leaving this question open and highlighting it for the MoP's deliberations.

Another essential-use exemption nomination – relating to the use of CFCs in aerospace applications – was also forwarded to the MoP.



Courtesy: World Bank

Critical-use

Critical-use exemptions relate to methyl-bromide use. Nominations for these exemptions contine to focus on agricultural uses, specifically strawbe in farming. These nominations were submitted by the US, Canada and Australia. The EU, having successfully phased out the use of methyl bromide in its strawberry farms, was joined by Mexico in objecting to the drawn-out process in the three nominating countries. This issue was not resolved within OEWG-33, but will be the subject of bilateral work between the MBTOC and each of the nominating countries, prior to MoP-25 in October.

ODS Alternatives

In response to a request from MoP-24, the TEAP prepared a report on the development of alternatives to ODSs, which was previewed by OEWG-33. That report is described as including "a description of all alternatives to ODS that are commercially viable, technically proven and environmentally sound" as well as proposed language for a MoP decision on alternatives under development. This process enabled the report's authors to obtain significant feedback on the report and the particular issues that the Parties were most desirous of understanding, in time to adjust it prior to submission. The ensuing discussion and proposed decision emphasised access and barriers to ODS alternatives, costs, global-warming potential, transition to

alternatives, uniformity of standards for designation of alternatives, particular ODSs and funding.

The discussion was eventually stymied by interventions from Brazil, Kuwait, India, South Africa and Argentina concerning the coverage and authorisation of the report. In particular, they claimed that, contrary to what it stated, the report "[did] not build on information already provided by the TEAP", and that it went beyond its mandate in addressing issues that are under the oversight of the

"climate change regime" as well as the proposed amendment of the Protocol – political issues that a technical report should not touch. Ultimately, these differences were not resolved, and the OEWG decided to forward the issue to MoP-25.

Other Actions

In addition to the above, the OEWG previewed the TEAP report repared for the MoP, in response to a request for "more information on 14 substances with effects on climate and atmosphere". This, and another discussion on ODS transition, about which the OEWG proposed formation of an informal group, provided an opportunity for the EU to express its concerns about bans on ODSs in feedstocks, and the need to "sunset" these uses (*i.e.*, allow them a few final years to recoup their investments) through gradual phase-outs. Similarly,

India and the US were able to talk out concerns about how CTC is treated, another issue on which bilateral discussions between each country and the TEAP may be held prior to MoP-25.4 The meeting also introduced a newly revised "Handbook on Critical-Use Nominations for Methyl Bromide", enabled comment on "quarantine and pre-shipment uses of methyl bromide", and opened several other discussions. The Group also examined and offered recommendations on the organisation of TEAP and nominated its members. (TRY)

Notes

- 1 The author was not able to attend the meeting and must accordingly base this report on the meeting documents, as posted online at http://conf.montreal-protocol. org/meeting/oewg/oewg-33/presession/default.aspx; and on the IISD coverage, "Summary of the Thirty-Third Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol on Substances That Deplete the Ozone Layer: 24–28 June 2013", Earth Negotiations Bulletin 19(94), 1 July 2013, available at http://www.iisd.ca/ozone/oewg33. Like most instruments whose Secretariat is located directly in UNEP, the Protocol does not formally post the meeting's outputs (recommendations to the MoP) or the final report, at or near the time of the event. Presumably this information will be available either at the upcoming MoP or on the protocol website listed above.
- 2 IISD report, ibid.
- 3 According to CTOC Co-Chair Ian Rae (Australia), the Russian Federation has indicated that it no longer considers RC-316c as a substitute for CFC-113, due to its high ozone-depletion potential and global warming potential.
- 4 According to the IISD report, *supra*, note 1, "Co-Chair Camargo suggested further bilateral conversations in the intersessional period before MOP 25. India responded that the issue could not be addressed through bilateral discussions, questioned the US use of CTC for hydrochloric acid production, and requested the TEAP to analyze this use. Co-Chair Camargo then closed the discussion". This suggests that, at minimum, the question of bilateral discussions is not decided.

Ramsar Convention

Chemical Legislation in Asia

- Rice-paddy Wetlands and Agriculture -

by Amado S. Tolentino, Jr*

Rice-paddy cultivation is the pride of many Asian societies and plays an important role in our cultural heritage. Asia is the source of one-third of the world's rice supply from irrigated rice fields which account for numerous scientific researches dealing with, among others, food-web interactions, the economics of insect pest damage, and agronomic practices which impact on the rice-paddy ecosystem. Paddy wetlands have unique characteristics and their ecosystems are rapidly changing. Many rice-farming practices, together with the series of stages rice crops go through, have made rice fields havens for a vast array of plants and animal life. About 2,000 species of plants and animals associated with rice paddies have been recorded in Japan, and Indonesia has identified more than a thousand. Paddy fields offer them shelter, food, breeding and nesting grounds on a permanent or (for migratory species) temporary basis.1

During the seed-germination and seedling stages, flooded rice fields are the habitat of aquatic invertebrate communities and aquatic vertebrates such as freshwardfish, amphibians, predatory birds and reptiles. When the water is drained off during the grain ripening stages, and reptiles become attractive to many grain feeding animals, including birds, rats and mice as well as predatory reptiles and mammals. The cultivating and flower ag stages promote the growth of weeds, and attract variety of insects both those that are harmful and those that are beneficial to the rice crops.² Truly, rice paddies are, cradles of life".

The economic (*i.e.*, food-security) and ecological (*e.g.*, biodiversity conservation, groundwater-recharge, flood-and erosion-control, plant/animal-food and conservation (of flyways and populations)) benefits of rice fields are in danger of being lost through pollution, particularly saltwater intrusion, as a result of climate change and the concomitant sea-level rise. Even more damaging, however, is the rampant conversion of rice paddies to other land uses (human settlements, industrial and commercial sites, and aquaculture).

Enhancing Sustainability and Biodiversity in Growing Rice

Rice paddies are acknowledged as a very threatened type of ecosystem. As "man-made wetlands" under the classification system of the Ramsar Convention on Wetlands,³ their significant role in biodiversity conservation is just beginning to be acknowledged. This

became apparent with the adoption of a new definition of "wise use" of wetlands, which links with the objectives of the Convention on Biological Diversity, emphasising the more specific objective of "maintenance of the ecological character" of wetlands rather than the more general "sustainable utilization" of wetlands.

Illustrative of the biodiversity/rice-paddy linkage is a novel practice in North Asia involving winter-related maintenance of rice paddies, in which pipelines are installed to channel water from established irrigation canals to the pudies, thus creating winter-flooded rice fields. The method brings benefits such as the inhibition of weed growth and enhanced fertility. In winter, water birds lock to the paddies and excrete large amounts of dropping which are valuable fertiliser to growing plants. Clemidal pesticide use became unnecessary in these paddies, where frogs lay eggs in flooded paddies, keeping the number of tadpoles high, and leading to a greater number of dragonfly nymphs to feed on tadpoles. Before the onset of summer, frogs, dragonflies and spiders play an active role in eliminating rice pests, allowing farmers to avoid chemical pesticide use. Other species that flock to winter-flooded paddies include crawfish that feed on worms, and summer birds like swallows and herons, to feed on fish and insects. Rice fields not only provide alternative nesting sites to White-fronted geese, but also promote the return of various species in the intricate food chain of the paddy ecosystem.5

The importance of biodiversity in paddy wetlands is now being gradually recognised and the winter-flooding regime is being set up as a model for the wise use of rice fields and the compatibility between environmental protection and economic activity. Rice harvested from winter-flooded rice paddies even commands a higher price.

Rice-paddy-related Legislation

The obligation to preserve/conserve rice-paddy fields is not specifically enshrined in the constitution of any Asian country. If it can be inferred to be covered at all, it may be deemed incorporated in constitutional provisions on environmental protection or natural resources conservation. This issue is still developing legislatively through pronouncements, directives and guidelines from concerned government agencies particularly ministries/departments charged with responsibility for agriculture, fisheries and environment, among others.

In Asian countries, where there are provisions related to rice paddies as human-made wetlands at all, they usually are found in legislation on agriculture, land use, water resources, irrigation, agroforestry, fishing,

^{*} Member of Ramsar Center Japan's International Steering Group which periodically sponsors the Asian Wetland Symposium, a complementary forum for the discussion of scientific and technical issues for the conservation and wise use of wetlands

pesticides/fertilisers, hunting, fishing and wildlife.⁶ In a few instances, such provisions can be found in recent legislation dealing with intellectual property rights. The reasons for this sectoral approach are more often historical or administrative than scientific or technical.

In the Philippines, agricultural policy has one vital focus - food security - which is addressed in the Agricultural and Fisheries Modernization Law (AFMA),⁷ the foundation for all policies pertaining to agriculture. Despite its holistic approach, the AFMA does not address conservation of rice paddies as wetlands nor does it address biodiversity conservation in rice fields. The closest the law comes to indicating anything in those directions is in providing for an increase in the number of farms engaged in "diversified farming", a term that is not defined in the law. This omission is given two explanations: (i) the main objective of the law is to increase food production to meet the rapidly increasing demand, and (ii) genetic resource management is a matter of biodiversity management which is the responsibility of the Department of Environment and Natural Resources. Even without directly addressing the issue, the AFMA includes provisions that call for the reduced use of agrochemicals that are harmful to health and the environment. It also includes direct links to the Philippine Agenda 21,8 including on issues such as integrated pest management as a policy in agriculture vis-à-vis improvement of farmers' seed selection to improve general quality and resistance against pests and diseases.

Other genetic-resources-related legislative instruments in the Philippines, include The Seed Industry Developm int Law⁹ (to accelerate the development of the seed industry by conserving and developing domestic plant general resources), and the High Value Crops Development Law.¹⁰ The latter led to the establishment of the High Value Commercial Crops Program under the administrations of two Philippine Presidents. Although the High Value Crops Development Law contains a distinct contains on plant genetic resources for food and agriculture, this perspective has been lost in the implementation of the law.

A Philippine Strategy for Biodiversity Conservation was formulated in 1995, and Executive Order 289 directed the integration of that Strategy into the sectoral plans of the government. From 1995 to 1997, a Philippine Biodiversity Assessment Report was prepared that paved the way to a comprehensive National Biodiversity Strategy and Action Plan.

The Philippine Agenda 21 addresses two aspects of plant-genetic-resource management. First, it highlights the need to strengthen germplasm and seed banks for indigenous Philippine species. Second, it pinpoints the necessity of re-introducing the use of traditional pest-and-disease-resistant varieties in order to reduce dependency on inorganic chemical inputs into agriculture. When chemical inputs are reduced, genetic diversity flourishes. The targets of Philippine Agenda 21 are still far from being achieved, though there are several success stories in the area of plant-genetic-resource management carried out in various local communities around the country.

The extent, nature and content of the legislative approach to rice-paddy agriculture vary from country

to country. Using the Philippines again as an example, rice lands are the target of the Agrarian Reform Law,¹¹ which redistributes lands devoted to rice to the landless tillers as a means of social justice. The Local Government Code,¹² however, allows reclassification or conversion of agricultural lands to other uses such as residential, commercial or industrial. Thailand's Riceland Rent Control Law (1973), on the other hand, limits landowners, whose total yield must derive primarily from direct agricultural activities. Not more than one third of that yield may be generated from the rented land.¹³

In Indonesia, the House of Representatives is preparing legislation to protect lands reserved for rice production. That legislation could include sanctions for property developers who illegally build on paddy fields, or convert them for other non-agricultural purposes. ¹⁴ The main argument underlying this measure is that property developments on lands reserved for rice production pose a serious threat to national food security. Of the approximately 7.8 million hectares of irrigated paddy fields throughout the country, more than 140 000 catares are being swallowed up each year by property development.

Japan's aw for the Promotion of Nature Restoration encourages revival of the wetland functions of rice paddies, focusing on rice-paddy agricultural wetlands. This law allow continued sustainable use while activating the wetland function. Likewise, in the Philippines the 2010 Agriculture Organic Act¹⁵ recognises the urgency of chifting to an organic agriculture model to veer away from the excessive use of agrochemical inputs in conventional farming systems. The law mandates, as a matter of State policy, that organic farming technologies can increase farm productivity, raise farmers' income, provide better health for producers and improve soil fertility by arresting the degradation of the environment. To carry out the mandate of the law, the Department of Agriculture launched a project called "Organikong Palayan - Pangasinan" (Organic Farming in Pangasinan) which aims to encourage the shift to sustainable agriculture practices among farmers; to mobilise support from local governments in terms of policies and programmes; and to promote sustainable agriculture as a key strategy for local economic development. A first batch of 280 farmers in Pangasinan have undergone season-long training in the organic farming of rice on eight training farms, two for each project area. 16

Trends in Agricultural Chemical Legislation

Among existing agricultural chemical legislation, measures on pesticide control, fertiliser use and regulation of other agricultural chemical formulations (insecticides, herbicides, fungicides, *etc.*) are very evident in Asian countries. The Food and Agriculture Organization of the United Nations (FAO) reports, however, that although most developing countries have adopted registration schemes to address these issues, health and environmental problems have not been reduced.¹⁷

Indonesia, Viet Nam, Korea and Thailand provide examples with regard to pesticide control. All pesticides are prohibited in Indonesia unless they meet government registration requirements. The Ministry of Agriculture, assisted by an inter-departmental pesticide committee, is charged with regulatory responsibility. Registration is denied for substances which are either chronically (carcinogen, mutagen) or acutely toxic. Fifty-seven formulations are banned for use on rice, to prevent insect resistance and resurgence. The Vietnamese government, on the other hand, set up a pesticide registration committee in 1991 to cover insecticides, fungicides, herbicides, rodenticides and three plant-growth regulators. Research on beneficial organisms has been carried out concentrating on rice and other main crops. Surveys recorded 2,962 species of insects, 728 diseases and 209 species of natural enemies on rice. Natural enemies (of pests and harmful weeds) are used in two main ways. In some cases, they are raised and released into the relevant crop and in others, the naturally occurring species are protected and maintained. Natural enemies were first used in Vietnamese agriculture to control rice pests in the 1980s.

In Korea, all pesticides are regulated under the Pesticide Management Law (1957) administered by the Rural Development Administration of the Ministry of Agriculture, Fisheries and Forestry. While users, marketers or the government are not required to test pesticides for their effects on non-target anthropoids, work is underway to determine the impact of specific pesticides on natural enemies of agricultural pests, including evaluations of the toxicity of a rice pesticide on two rice field spiders. Ir 1995, the Ministry of Environment introduced a system of environmental impact rating for herbicides for di play on the label.

By contrast, in Thailand, the pesticide contrast is governed by the Hazardous Substances Act (992). Before a product is marketed, full registration, required which includes the submission of the results of bioefficacy tests, complete toxicological data and two years of feeding studies. This registration we me also features control of all pesticides and plant-growth regulators as well as the adoption of pesticide classifications by hazard. In Pakistan, the import, manufacture, formulation, distribution, safe use and advertisement of pesticides are regulated under the Agricultural Pesticides Ordinance (1971) and the Agricultural Pesticide Rules (1973), which are based on the FAO Guidelines. Samples are tested by agricultural research institutions in each ecological zone. Myanmar's Pesticide Law (1990) provides for registration procedures carried out by the Pesticide Registration Board. Approximately 77 percent of pesticides (90 percent of insecticides) are used on rice. A factory processes neem seed extract which is used to control the abundance of natural enemies on farm lands.

In China, all pesticides must be registered under the Regulations for Pesticide Registration with data submitted to the Registration Division and Bio-assay Division of the Institute for the Control of Agrochemicals, Ministry of Agriculture. Approximately 300 active pesticide ingredients are registered. Any change in formulation, active ingredient concentration or scope of application requires supplementary registration. Registration involves three stages: field test, temporary registration and

permanent registration. Field tests should be carried out in at least two different agricultural production sites for two years, and indicate summary data on product chemistry, toxicity and efficacy. Most testing is carried out by experts and technicians at research, technology or educational institutes, and 290 qualified agricultural staff conduct pesticide trials for the Bio-assay Division. China's Pesticide Field Trial Guidelines draw on those of the European Plant Protection Organization, as well as FAO's Asia and Pacific Region regulations, taking into account the specific conditions in China. Temporary registration requires submission of detailed chemical data, and disclosure of registration status in other countries, and mandates label and use restrictions. Permanent registration is obtained only after completion of field trials for efficacy and residues, and requires a complete set of toxicological data.

In Lao PDR, despite their relative lack of availability and active government discouragement of their use, chemical pesticides (mostly insecticides) are still sometimes used in irrigated rice lands. Fungicides and herbicides are more rarely used which accounts for the high population levels of natural insect pest predators in this area. The country has a Pesticide Law to control the import manufacture or repacking of pesticides but that law has yet to be implemented by the Department of Agriculture and Extension.

In sum, pesticide use regulation is very evident in Asian countries. Its extent ranges from policy and legislation covering importation and production, through controls on use and consumption, and includes registration and regulatory procedures as well as implementation institutions. Testing and trials are often incorporated as well as use restrictions, but rarely for biological control purposes. The availability of government subsidies for pesticide use to ensure bountiful harvests is sometimes accompanied by farmers' informed consent procedures based on training on pest management and impacts on health. Further research on pesticides is usually encouraged in these pesticide regulatory schemes.

Rice-paddy Wetlands at Ramsar's CoP-10 and CoP-11

"Rice fields" have always been listed as a human-made wetland ("Type 3 Irrigated land includes irrigation channels and rice fields") in the Ramsar Convention's Classification System for Wetland Types. International concern for manmade rice paddies as wetlands only came to the fore at the 10th Meeting of the Conference of the Parties to the 1971 Ramsar Convention on Wetlands (CoP-10, Korea) which approved Resolution X.31 (Enhancing biodiversity in rice paddies as wetland systems), which encourages Contracting Parties to (i) identify challenges and opportunities associated with managing rice paddies as wetland systems in the context of wise use of wetlands, paying attention to the connectivity between rice paddies, natural wetlands and river basins, as well as to the promotion of sustainable agricultural practices; (ii) ensure that planning, farming and water management practices associated with rice paddies do not lead to loss of existing natural biodiversity and ecosystem services; and (iii) seek to appropriate environmentally sustainable ways of minimising risks to human health associated with waterborne diseases, disease vectors and excessive and inappropriate use of agricultural chemicals in rice paddies.

Pursuant to Resolution X.31, Ramsar's Scientific and Technical Review Panel conducted studies and meetings which culminated in a resolution by CoP-11 (Romania) (Resolution XI.15 "Agriculture-wetland interactions: rice paddy and pest control"), which encourages Contracting Parties to take, *inter alia*, three key actions:

- review, revise, and/or formulate policies for the appropriate governance, regulation and use of pesticides in rice production through the development/ application of monitoring programmes for the impact of rice pesticides use in wetland biodiversity as well as data collection and dissemination of good practices on managing rice-paddy biodiversity for the control of crop pests;
- integrate relevant issues related to pesticide usage in rice paddy into their national policies and strategies; and
- work with the rice and pesticide industries, research institutions and human health sectors to address inadequate practices, eliminate perverse incentives, and secure the provision of financial resources from developed to developing countries.

The opening paragraphs of Resolution XI.15 capture present realities, noting that although some countries have mechanisms in place that are reducing levels of pesticide usage, in general, continuing patterns of pesticide use re threatening not only rice-paddy ecosystem service and biodiversity but also food security and human he. 'th a. d livelihoods by impacting predators of rice pert species, increasing such species' resistance to pesticies, and increasing the occurrence of pest and disease outbreaks, as well as the potential adverse downstrea. impacts on wetland ecosystems through changes in war quality from pesticide run-off. In addition, overuse or inappropriate use of such pesticides affects overall wetland biodiversity, including that depended upon by local communities for their livelihoods such as from fisheries, a fact not always recognised by stakeholders.

Conclusion

The current worldwide emphasis on biodiversity conservation is increasingly bolstered by the prominence of rice paddies as a key management sector. This recognition was brought about by the Ramsar Convention's efforts at active implementation. Paddy wetlands, however, still need to be made the subject of specific conservation measures.

Currently, rice-paddy-related legislation in Asia appears inadequate to aid in sustaining rice-paddy ecosystems. A review of available legislation gives the impression that existing laws, rules and regulations could even impede or obstruct the objectives of conservation for sustainable development. Specifically in the area of pesticide use, the lack of political will (as shown by the non-availability of funds, personnel, technical information, laboratories and infrastructure for implementation and enforcement

of pesticide laws) may aggravate the problem. Ignorance is widespread with regard to pesticide use regulatory requirements and how to meet those requirements; management systems for compliance; compliance training for personnel. There is an inability to meet requirements due to lack of appropriate technology.

The range of legal and institutional problems and issues concerning rice fields include the current fragmentation of the issue in legal and institutional frameworks, where one finds scattered provisions and inconsistent legislative treatment in various agencies, and a number of different standards and procedures being applied on a partial basis, to prevent harmful impacts. Similarly, compliance, management and enforcement issues pose a challenge. There are few legally backed monitoring requirements, a lack of coordination among government agencies, and a lack of funds and trained personnel on the wise use of rice paddies. In addition, reforms are needed in all pesticide legislative measures to make them effective instruments in rice-paddy governance for wetland and biodiversity conservation.



Courtesy: Wikimedia

Recommendations for Future Action

As man-made wetlands in Asia, rice paddies are acknowledged to be threatened. The conflicts involved in their use and management, their limited extent and their vulnerability to development pressures all bespeak the need for sound management. The following recommendations address the legal and institutional aspects discussed above:

- Countries should develop policies on paddy wetlands as well as national conservation strategies that integrate principles promoting the wise use of wetlands. They should implement such policies by improving institutional frameworks and updating legal measures. Legislation should include economic and fiscal incentives and disincentives.
- 2. Rice paddies should be specifically addressed in each country's wetland management system and supervised by a competent government institution with the aim of instituting efficient site-specific planning and management strategies and techniques. This would often require the adoption of a special definition of a rice paddy as a man-made or artificial wetland. (Guidelines would be helpful in this process, so that it can properly take ecological agriculture approaches into account).

- In addition to re-examination and harmonisation of pertinent laws, efforts should extend to building political will, to be evidenced by the availability of funds, personnel, technical information and infrastructure for monitoring and enforcement. Enforcement jurisdiction should consider the village level where rice paddies are located.
- 4. For sound rice-paddy management, management plans are needed, which should have the following objectives:
 - To preserve rice-paddy ecosystems for the protection of genetic resources and biological diversity;
 - (ii) To conserve resources (plants, insects and animals, physical space or land for the maximum benefit of the people); and
 - (iii) To avoid conversion of rice paddies to housing, aquaculture, recreational sites and other types of agriculture.

For greater effectiveness, management plans could be legitimised through formal adoption by local government legislative assemblies or executive boards or village councils.

- 5. Reforms in agricultural chemical legislation should include the following:
 - Policy reconsideration on the grant of government subsidies. To the extent that it affects agricultural chemical application, such policy should be supported by, inter alia, informed farmer consent; risk assessment before pesticide use, strict implementation of pesticide laws in Jud. 2 labelling and packaging requirements; a stic deuse reporting mechanism; and cert fication and training for government extension workers and agricultural chemical retailers to ensure better pesticide application ac ice. 19 Policy should also seek to promou harmonisation of pesticide regulation among countries and enhanced monitoring of the impact of pesticide use on biodiversity, as well as evaluation of the effectiveness of regulation;
 - (ii) Awareness of the time lag between science/ scientific developments and legal uptake. In pesticide management, translation or incorporation of scientific innovations and alternatives into legislation is slow, if it happens at all. In this connection, guidelines on how to comply with pesticide laws and the development of rules and regulations for easier compliance with these requirements, accompanied by awareness, understanding and knowledge campaigns would be particularly useful;
 - (iii) Improved coordination among environment- and wetland-related government agencies as well as their effective collaboration with farmers' groups, NGOs and the agricultural chemical industry. A concerted effort to engage all these groups in dialogues to modify their perceptions is needed in this regard;

- (iv) Recognition of the long-term nature of the issue. With scientific back-up, pesticides are likely to remain important in rice-pest management for many years. A more integrated approach is needed that can continue to reduce reliance on pesticide application. Towards this end, integrated pest management (IPM) should make use of a combination of approaches that include mass-media transmittal of simple messages through low-cost methods (e.g., mobile phones, radio programmes) to reach large numbers of farmers on a continuing basis, and integration of IPM into school curriculums in rice-producing communities. Most important of all, farmer education through field schools should incorporate biodiversity-based pest control as well as modification of current management practices associated with pesticide use;20
- (v) Balancing the advantages and disadvantages of reduced reliance on pesticides and other agricultu. I chemicals vis-à-vis greater production fi ni rice farming, protection of rice-paddy cos, stems and even mitigation of global warming. Attention should move to "newgeneration selective, low-toxicity pesticides, bio-pesticides and improved application technologies".²¹

Asia faces challenges in managing its agricultural and environmental resources from loss of wetlands. In this connection, it is common to assume that traditional farmers are always right and that modern science is the cause rather than the possible cure for the serious environmental problems associated with agricultural development in the region. The Green Revolution, launched in the 1970s, is often cited as the point at which traditional agricultural systems were allegedly replaced with modernised methods of farming. Some blame technology for the loss of genetic diversity, excessive use of chemical fertilisers and pesticides, and pollution of soil and groundwater.

Perhaps, the best view is that farmers and scientists are both correct and well meaning, so that efforts should focus on understanding the management of agricultural resources and the environment from both perspectives. The integration of scientific research, practical experience and public education would be most useful, promoting collaborative efforts to address key questions. Specifically, what kinds of species depend on rice-paddy ecosystems? What integrated management practices ought to be adopted for wise use of paddy fields? What are the advantages and disadvantages of reduced reliance on agricultural chemicals vis-à-vis greater profitability from rice farming, protection of rice-paddy ecosystems and even the mitigation of global warming? To what extent do countries which grant subsidies make informed decisions about the ecological and health consequences of those choices? After thorough consideration, clear policies, rules, regulations and guidelines could help in implementing rice-paddy-related legislation that is responsive to the challenges of effective wetland and biodiversity conservation.

Notes

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Focus on Biodiversity Man streaming

by Elsa Tsioun ni*

First organised in 1993, the Trondheim Conferences on Biodiversity have consistently provided an important forum for high-level multi-country dialogue on key issues relating to the implementation of the Convertion Biological Diversity (CBD) in a more relaxed negotiating setting. With focus on enhancing cross-sectoral dialogue on biodiversity research and management, and establishing the best possible scientific basis for policy and management decisions for CBD implementation, this series of conferences has provided valuable input to the official CBD processes, highlighting, among other issues, the relevance of biodiversity for sustainable development.

The seventh Trondheim Conference lived up to this history. Hosted by the Norwegian government in cooperation with the CBD, the UN Environment Programme (UNEP), the UN Food and Agriculture Organization (FAO), the UN Development Programme (UNDP) and the World Bank, its overall focus was on the first goal of the CBD's Strategic Plan for Biodiversity 2011–2020, which proposes mainstreaming biodiversity across government and society as the Parties' primary means to address the underlying causes of biodiversity loss. Adopted in 2010 by the CBD Conference of the Parties (CoP), this Plan has been endorsed by several other environmental conventions, as well.

Participants in the Trondheim Conference considered the ways in which biodiversity contributes to a sustainable society, and the ways in which a careful alignment and mix of policies, incentives and business strategies can help deliver development pathways that lead to a more sustainable society. A co-Chairs' report of the Conference,

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entitled "Moment of Opportunity", which captures the key messages arising from the Conference, will be transmitted to the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA).²

This report follows the Conference sessions by focusing on proceedings and presentations of most relevance to international environmental law. It also provides a brief summary of the Co-Chairs' report.

Trondheim+20 Perspectives

The "20-year perspective" session was chaired by Jayanthi Natarajan, India's Minister of Environment and Forests and CBD CoP President, and Bård Vegar Solhjell, Norway's Minister of Environment. Bård Vegar Solhjell noted the need for improved knowledge as key to making better decisions, sharing his expectations with regard to the role of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES); and a stepwise approach to valuation of natural capital, highlighting the contribution of the study on The Economics of Ecosystems and Biodiversity (TEEB). He further called for working across the environment, agriculture, forest, fisheries, development and planning sectors to achieve the Aichi biodiversity targets.

Abdul H. Zakri, IPBES Chair, said the Platform could create policy-relevant scientific consensus from a wide range of sources, and support decision makers in the translation of knowledge into policies, highlighting its aims to include capacity building to help bridge different knowledge systems.

Noting the contribution of the Trondheim conferences to shaping the CBD agenda, Braulio Ferreira de Souza Dias, CBD Executive Secretary, drew attention to the Strategic

Plan's emphasis on tackling the underlying causes of biodiversity loss, stressing the need to pass from the phase of pilot projects to the phase of biodiversity mainstreaming into development planning and implementation. He suggested that one of the best ways to make progress on biodiversity goals would be the promotion of winwin approaches that could also contribute to poverty eradication, climate change solutions, and food, water and energy security. In that regard, he presented relevant examples, including the revised forest code in Brazil, reforestation schemes to combat land erosion in Asia, and South Africa's Working for Water system. He further highlighted the need for progress in national biodiversity planning and accounting processes, noting that consideration of biodiversity's economic values would also be essential but should not be used to disregard its intrinsic value or "commodify" nature, but instead to reflect the full value of nature in policy discussions.

Several speakers addressed the UN's post-2015 development agenda. Abdul H. Zakri stressed the need to ensure the Aichi targets will be fully taken into account in that process; to decouple growth from consumption; and to develop a vision going beyond gross domestic product (GDP), along the lines of the inclusive wealth index, which aims to capture the value of natural resources. Rebeca Grynspan, UN Under-Secretary General and UNDP Associate Administrator, proposed four main actions that parties and agencies could promote to mainstream biodiversity concerns into the development agenda: fostering learning regarding the contribution of biodiv(rsity for poverty eradication; consolidating common la guage in respect to the post-2015 goals; shaping public option by improving public communication; and imposering national constituencies towards an effective participation in the on-going UN consultation process on the post-2015 agenda. Braulio Ferreira de Souza Dias sid that current discussions on the Rio+20 outcome 1 ocument, "The Future We Want", represented a significant step forward from the fragmented approach of the MDGs, identifying the challenge of achieving goals simultaneously in often competing areas. Peter Gilruth, Director, UNEP Division of Early Warning and Assessment, underscored that scaling up relevant solutions was fundamental, noting that science was a key ally in the effort to link economic growth, environmental conservation, and social improvement.

Introduction to Ecology and Economy

The introduction session was co-chaired by Conference Co-Chairs Tone Solhaug, Norway's Ministry of Environment, and Ivar Baste, Norway's Directorate for Nature Management. They presented Simon Upton, Environment Director of the Organisation for Economic Co-operation and Development (OECD), who gave a presentation on bridging economic and ecological policies for a sustainable society, including relevant work on biodiversity under the *Environmental Outlook to 2050*. He identified four priorities for action: reforming or removing environmentally harmful subsidies; scaling up private-sector engagement; improving data, metrics and indicators; and mainstreaming and integrating biodiversity into other

policy areas and sectors of the economy. Prasad Menon, Chairman of Tata Quality Management Services, presented three case studies from the Tata group's experience, in which education was used in the service of environmental conservation. These examples involved whale shark conservation; assessment of key biodiversity areas involving coral reefs, mangroves, turtle sanctuaries and bird conservation; and a withdrawal from industrial plants by the Natron Lake, in Kenya. He concluded by highlighting the hope for stronger partnerships among academia, communities, the private sector and governments.

Peter Schei, Trondheim Conference founder, spoke on the history, challenges and future of the Trondheim Conferences on Biodiversity, and identified future challenges for biodiversity governance, including the alignment of sustainable development goals with biodiversity concerns and targets; mainstreaming biodiversity into the economy, laws and human behaviour; developing the right institutions and processes for publicprivate governance; ensuring better use of biodiversity and ecosystem ser ices for mitigation and adaptation; and integrating ocial and ecological systems for establishing good go rnance structures. Pavan Sukhdev, Green Initial ves for a Smart Tomorrow (GIST) Advisory, urderscored the need to understand the pathways that we'ld lead us to a green economy. For that, he suggested fostering public investments, green public procurement, subsidy reforms, and environmental law, with a focus on calculating environmental externalities.

Ecology and Economy for a Sustainable Society

The panel session on the linkages between ecology, economy and sustainability was moderated by Peter Schei. The discussion covered, among other issues, the need for a common language to engage diverse stakeholders, the relevance of the social sciences to policy making, and the challenge of creating a business response to the biodiversity conventions. Participants recognised that political will was relevant, but noted the risks of generalising, further arguing that "big money can buy political will". Others noted that transparency was key for a good governance framework. The panel acknowledged the negative impacts of agricultural subsidies for food security and regretted the lack of adequate action on this topic. It was also recommended that taxation policies be further developed in order to incorporate natural capital value.

Trade-offs in National Policies

The session was chaired by Valeria González Posse, Directorate General for Environmental Affairs, Ministry of External Relations of Argentina. Presenters included Edward Barbier, University of Wyoming, US, who highlighted that the overarching challenge lay in tackling the environment-economy trade-off, which refers to ecological scarcity *versus* the benefits of economic development. He explained that policy should address three key failures to improve economic policies for biodiversity and ecosystem services: market failures, including dealing with ecosystem services as economic externalities; institutional failures,

referring to a lack of appropriate social institutions; and policy/government failures, including unintended impacts of policies, such as subsidies.

Barbier then addressed challenges related to valuation, incentives and international compensation. Heidi Wittmer, of the Helmholtz Centre for Environmental Research, launched the *Guidance Manual for TEEB Country Studies*, which aims to provide practical advice to anyone considering or undertaking a country study as envisioned by the project known as "TEEB – The Economics of Ecosystems and Biodiversity".



Roundtables during the Conference Courtesy: IISD-Earth Negotiations Bulletin

Bob Watson, Co-Chair of the UK National Ecosystem Assessment, explained that a crucial aspect of the Assessment was its inclusion of the perspectives of several stakeholders. He argued that looking at cultural and other values, in addition to market values, was vital; and no ed the need for complementary actions, including fina cia. incentives, legislation and behavioural change. Edg a Selvin Pérez, National Council for Protected A. as, Guatemala, discussed the impact of ethics an State building for biodiversity conservation, poting that good institutions and democratic States were cential for avoiding ethical flaws. Valerie Hickey, which Accounting and the Valuation of Ecosystem Services (WAVES), World Bank, argued that the key problem was that "biodiversity remains invisible at the marketplace of ideas", meaning that it continued to be a topic absent from the offices of decision makers. She noted the challenge of communicating biodiversity concerns to the development community, and suggested embracing new partners (notably the private sector), developing an interdisciplinary perspective, improving the biodiversity narrative to include measurable units of analysis (e.g., jobs and distributional effects), and taking both cost sharing and benefit sharing into account.

Nik Sekhran, UNDP, stressed the need to understand what drives decision making in various sectors. Focusing on the need to influence business, he explained that the bases of cost-benefit analyses were profits, government regulations, incentives, and several classes of risk. He called for better communication of such risks, including those related to reputation; access to land, capital and markets; security of supply; liabilities and relations with regulators; and the need to influence business through incentives and penalties.

Anthony Cox, OECD, noted the OECD's recently developed assessment framework, through which policy

makers and stakeholders could come together over options and trade-offs. He stressed the need to address the link between the local-level impacts of trade-offs and national-level policies. He also noted the need for and role of non-economic indicators that could provide a holistic assessment of biodiversity impacts on everyday life, real option models for valuation, economic and market instruments to overcome asymmetric information, and compatibility between corporate and public-sector reporting mechanisms. He called for a link between biodiversity and other agendas (*e.g.*, climate, food, water and military security).

Diego Pacheco, Ministry of Foreign Affairs, Bolivia, drew attention to two distinct visions of ecology and economy: the western, anthropocentric and market-oriented one with nature as capital; and the cosmocentric one, based on an indigenous peoples' mindset, viewing Mother Earth as a living being, influenced by, but not centred on, markets. He noted that the second vision would not necessitate the commodification of natural functions but would promote the rights of peoples and of Mother Earth, while the ideas of natural capital and ecosystem valuation would not move ecology for vary. He then presented the Bolivian legal framework to the management of environmental functions for living in balance and harmony with Mother Earth.

The presentation by Stanley Asah, University of Washington, US, focused on the role of social sciences n achieving the Aichi targets. He argued that, while biodiversity conservation has always been about human enterprise, yet policy makers haven't readily discussed human behaviour. Asah underscored many aspects of this fact, noting the plurality and dynamism of values and beliefs, and that different conditions and social insecurity could affect conservation, pointing out that education and financial incentives alone did not shape behaviour. Biodiversity should be considered an element of wellbeing, but many biodiversity institutions have frequently disregarded local realities and power relations. He concluded by noting that the human ego has motivated people to act in favour of environmental causes and that behaviour change has therefore not been difficult. He said investing time to understand human motivations and politics has always been essential in this endeavour.

Alessandra Alfieri, UN Statistics Division, presented the UN system of environmental economic accounting, recalling that the Rio+20 Outcome Document recognised the need for measures of progress to complement GDP and that the UN Statistical Commission was requested to launch a programme of work in this regard. She presented two documents: the 2012 System of Environmental-Economic Accounting (SEEA) Central Framework and the implementation strategy adopted by the UN Statistical Commission in March 2013. She also discussed the development of a data reporting mechanism and the experimental ecosystem accounts, which would promote an integrated measurement for the environment and complement the Central Framework.

Pushpam Kumar, UNEP, provided an overview of the Inclusive Wealth Report (IWR) 2012, a joint initiative of UNEP and the UN University International Human

Dimensions Programme (UNU-IHDP). He said dominant economic metrics, like the GDP, have been inadequate measures of wealth and human wellbeing, and elaborated on the merit of alternative metrics based on sustainable income, genuine savings or adjustment-based approaches. He described how the IWR 2012 improved on the GDP approach, with a comprehensive measurement of natural, human and social capital, adding that the upcoming IWR 2014 report would expand from the current 20 to 100–150 countries. He further noted that the IWR's measurements of natural capital offered meaningful information for the Aichi targets, with relevance to, inter alia, fossil fuels, fisheries, and forest resources. Anantha Duraiappah, UNU-IHDP, provided additional details on the theoretical basis of the report, which redefined wealth as the stock of productive capital that society could use to generate human wellbeing. He said the IWR 2012 report contained surprising conclusions, such as the finding that the depletion of natural capital has been producing diminishing rates of return for human wellbeing in many countries, as well as the revelation that data on natural capital was often more complete than data on social capital. Duraiappah further explained that the report offered insights on key policy questions, such as the sustainable rate of consumption of society's productive base and the identification of key investments to strengthen that base.

Aligning Policies, Incentives and Business with Safe Ecological Limits

The session on aligning policies, incentives and business with safe ecological limits was chaired by Carea Malherbe, Department of Environmental Affa s S ath Africa. Rachel Kyte, Vice President for the Susta hable Development Network, World Bank, pres nted the World Bank's view on the need to balance economic and environmental interests. She urged by a change in our approach to natural capital, that , hould become a capital asset, and explained the tool of adjusted net saving, as a sustainability indicator building on the concepts of green national accounts and providing the necessary baseline measure. Paul Leadley, University of Paris, France, spoke on systems ecology and the identification of safe ecological limits at different scales. He noted that, particularly for biodiversity, scientific uncertainty has remained high and that climate change has exacerbated its complexity, but argued that defining safe limits was vital, because uncertainty led to low cooperation in avoiding environmental degradation. He recalled Aichi Target 6 on fisheries as an example in which "safe ecological limits" were taken into account.

Arne Geschke, University of Sydney, Australia, presented a study on trade and biodiversity. Stating that local causes for biodiversity threats, such as deforestation and unsustainable fishing, have become well understood, he said the study aimed to assign responsibility for threats driven by economic interest, in particular the export of goods and services, to the final consumer. He explained several key elements of the analysis: development of a multinational input-output table reconciling data from several sources; introduction of species threats, using data

from the IUCN Red List; and analysis of five billion supply chains. He concluded that developed countries have driven the species threats taking place in developing countries. Edgar Hertwich, Norwegian University of Science and Technology, noted that the study of industrial ecology has provided policy-relevant insights into the unintended environmental impacts caused by the production, transport and consumption of natural resources. Hertwich elaborated on the ecological footprint as a tool for industrial ecologists to quantify and communicate national-level environmental impacts in an integrated manner by combining international trade, land use, and greenhouse gas emissions in a single matrix.

Rob Alkemade, PBL Netherlands Environmental Assessment Agency, followed with a presentation on the state of knowledge within the fourth edition of the *Global Biodiversity Outlook* (GBO-4). He said GBO-4, to be published in 2014, would provide a mid-term evaluation of the implementation of Aichi targets, comprising the state and trends of biodiversity; a review of national reports and NBSAP: and a scenario analysis for achieving the Aichi target and the long-term vision of the Strategic Plan 2011–202. The presented preliminary conclusions:

- that meeting the Aichi targets would contribute substantially to slowing down biodiversity and cosystem degradation;
- that most scenarios have projected continuing degradation;
- that pressures on biodiversity have most strongly related to agriculture, forestry, water management, fisheries and energy; and
- that cooperation among sectors toward securing mutual benefits would be the key to reducing these pressures.

Parallel Sector Perspectives: Alignment of Policy Mixes for Conservation and Sustainable Use of Biodiversity across Scale

The second part of the Conference included parallel sessions on forestry, fisheries and agriculture. Introducing it, Árni Mathiesen stressed that strong sectoral and cross-sectoral policies have become essential for the mutual success of these sectors due to their interlinkages, adding that such policies should be implementable, inclusive, democratic, science-based, and accountable.

Forest Management and Biodiversity

Carlos Manuel Rodríguez Echandi, Ministry of Environment, Costa Rica, chaired the forest session. Rodríguez stressed three factors behind the success of Payments for Ecosystem Services (PES) in Costa Rica: addressing perverse incentives that the development programmes and policies of past decades created to expand agriculture; reforming institutional structures to enable mandates and mindsets that conceive of conservation as an economic good, rather than an economic burden; and creating a politically sustainable legal and institutional framework for PES. Irene Ring, Helmholtz Centre for Environmental Research, explained the conceptual basis of ecological fiscal transfers (EFTs), which redistribute

public revenue from the national and subnational level to local governments in order to compensate the local level for the provision of conservation-related public goods and services. She stressed that EFTs were a tool to minimise transaction costs by leveraging existing finance mechanisms, and to complement, rather than replace, private-sector finance. Rui Santos, New University of Lisbon, Portugal, recounted Portugal's experience with EFTs under the country's Local Finances Law of 2007, which supports conservation through a financial equilibrium fund that creates an "ecological signal chain" by allocating resources to municipalities' general funds. He, however, cautioned of unequal distribution effects across municipalities, because of broader structural issues and the recent economic crisis. Maria Fernanda Gebara. Federal Rural University of Rio de Janeiro, Brazil, gave a comprehensive overview of the REDD+ policy mix at a national level in Brazil. She described the purpose, instruments, and beneficiaries of a range of REDD+ policies, concluding that while the policy mix has been complementary in principle, future success would depend on improved horizontal and vertical coordination at all

Discussions in this session covered various topics, including strengthening provisions for indigenous peoples under the Amazon Fund, overcoming "silo" approaches that have impeded the coordination of climate and biodiversity policies, forest certification, and concerns over market-based approaches to REDD+. Summarising the discussions, Rodríguez said that the track record of these economic instruments has proved that countries out generate enough resources to support conservation and meet the Aichi targets. He noted that there has been ittle discussion of overseas direct investment, which should be reserved for targeted capacity building and institution building in specific countries. Rodríguez inc. eted that the experiences of Costa Rica and Mexico . " proven that PES could be politically resilient, replicable and scalable to the national level, clarifying that these countries had implemented their instruments based on direct payments within a regulatory framework and not market transactions. He said that EFTs could offer an important tool to direct public finance, and noted the discussion on maintaining such mechanisms during fiscal crises. Rodríguez said the session revealed that REDD+ must be seen in the context of the existing complexities of forest-sector governance, including opposition from entrenched economic and political interests.

Biodiversity in Agriculture and Food Security

The food and agriculture session was chaired by Åslaug Marie Haga, Director of the Global Crop Diversity Trust. Linda Collette, Secretary of the Commission on Genetic Resources for Food and Agriculture (CGRFA), gave a presentation on agricultural sector instruments and mechanisms addressing biodiversity issues. She provided an overview of the bodies and instruments of the FAO relevant to biodiversity, including the CGRFA, the International Treaty on Plant Genetic Resources for Food and Agriculture, the International Plant Protection

Convention and the Committee on World Food Security, and highlighted that implementation of existing instruments could assist with implementation of several Aichi targets, only if there were also an increase in synergy and policy integration. Andrea Cattaneo, FAO, supplemented that presentation with a description of policies and institutions to support sustainable agriculture, at both macro and micro levels. Participants then heard national case studies related to mainstreaming or using biodiversity in the context of sustainable intensification, food production and food security.

Patrick Mulvany, Practical Action, gave an NGO perspective on biodiversity for food and agriculture. Highlighting that industrial agriculture erodes agricultural biodiversity, he analysed drivers of loss, including industrial models of production and harvesting; restrictive laws, including intellectual property rights; corporate power and market concentration; private-sector privilege and commercial contracts; and disruptive technologies. He called for changing the power structure through inclusive participation in dec. ion making, particularly of farmers; ensuring coherence among relevant international treaties; and promot. g. Jod sovereignty.

Sum variling the discussions, Haga highlighted comments indicating that, due to population growth and the led for an increase in food production in the face of increasingly unpredictable weather, agriculture has been forced to face the most profound challenges in its history. She noted a general recognition that biodiversity in agriculture has been overlooked and not satisfactorily valued. Participants in global governance had noted that international agreements and institutional arrangements existed, but their implementation and policy coherence have remained key challenges. Case studies indicated that companies have threatened agricultural biodiversity, for instance through concentration in the seed sector. Under certain conditions, however, some companies may also be drivers of positive change. Finally, discussions stressed that farmers have always been key to saving agricultural biodiversity, and their knowledge and skills should be valued and included in decision making.

Biodiversity in Fisheries and Ocean Management

Johan Williams, Chair of the FAO Committee on Fisheries (COFI) and Specialist Director, Norwegian Ministry of Fisheries and Coastal Affairs, chaired the fisheries session. Fabio Hazin, International Commission for the Conservation of Atlantic Tunas, Brazil, provided an overview of the legal background of fisheries protection at the international level. He affirmed that food production must be balanced with an acceptable level of impact on the ecosystem. To improve fisheries, he said, a need to expand retention bans, time-area closures and the use of more selective fishing gear has been discerned. He mentioned that the Convention on International Trade in Endangered Species (CITES) could be a useful complement to on-going work conducted by fisheries institutions and stressed the main challenge of moving from single-species fisheries management towards a fully fledged ecosystem-based fisheries management system.

Sybille van den Hove, Autonomous University of Barcelona, Spain, spoke on the dilemmas in the stillrelatively-unexplored deep seas, which have consequently been little understood and, thus, have presented a challenge for global governance. She noted the danger to the deep sea due to, for example, shipping, mining, overfishing, and waste dumping, adding that an ethical dimension must be considered and that value should not necessarily be established on monetary terms. Susan Hanna, Oregon State University, US, discussed the direct economic benefits from rebuilding fishery stocks. Drawing on interventions from debates at the OECD, she highlighted the importance of understanding the causes of overfished stocks and of considering distributional effects, incentives, time horizons and institutional frameworks. Peter Gullestad, Norwegian Directorate of Fisheries, described the longterm sustainability of fisheries in Norway between 1970 and 2013. Following an overview of the Norwegian management regime accords throughout this period, he argued that the fishery industry must be profitable without subsidies and respect ecological constraints in order to attain social benefits.

Barrie Deas, National Federation of Fishermen's Organisations, UK, discussed the integration of fisheries and environmental policy through the industry perspective and his experience in the EU. He affirmed that "good intentions" were not being translated into concrete action and argued that prescriptive practices have been particularly hard to implement in the case of fisheries. He noted that the EU failure on fisheries management was a reflection of lack of political will and that collaboration on sensitive information was necessary. Karolin, Andur, Head of Marine Programme, WWF-Norway, fiscus, of the problems of fisheries depletion from an NGO perspective, noting that a key problem has been the tendency to tackle the fisheries sector separately from overall ocean governance.

Trajectories Towards 2020

The "trajectories" session was chaired by Asghar Fazel, ECO Institute of Environmental Science and Technology, Iran, and former SBSTTA Chair. Ines Verleye, Federal Public Service for the Environment, Belgium, discussed resource mobilisation for the Aichi targets, highlighting the need for a structured, country-based approach to enable ministries of environment and other biodiversity actors to use globally-generated information nationally. She provided an overview of CBD provisions and CoP decisions on resource mobilisation, including the latest decision from CoP-11 (Decision XI/4), which calls for doubling international biodiversity funding to developing countries, combined with a country-driven prioritisation of biodiversity in national and development plans. She stressed the need for reinforced action at the national level, including country-specific resource mobilisation strategies. Katia Karousakis, OECD, shared the results from an OECD study, Scaling-up Finance Mechanisms for Biodiversity. Karousakis provided a systematic review of the scope, source and principles of the six "innovative financial mechanisms" covered under the CBD's Strategy

for Resource Mobilization: environmental fiscal reform, PES, biodiversity offsets, markets for green products, biodiversity in climate change funding, and biodiversity in international development finance. She further stressed the importance of environmental and social safeguards in the form of standards and performance indicators, grievance mechanisms, environmental and social assessments, project screening, and stakeholder participation. She concluded that all six of the mechanisms could play a role in scaling up biodiversity finance by supporting some combination of revenue raising, mainstreaming, and achieving least-cost results, adding that more attention should be given to the design and implementation of these mechanisms through pilot programmes, phased approaches and regular reviews that could facilitate incremental adjustments and be scaled up over time.

Claudia Ituarte-Lima, Resilience and Development Programme (SwedBio) at the Stockholm Resilience Centre, Sweden, examined the state of safeguards for biodiversity. She highlighted that the concept of safeguards had expanded to new arenas and had become a multifaceted notion, which varied according to constituencies. She distinguabel between substantive and procedural safeguards, and suggested ending a defensive approach to safeguards and focusing on a holistic method for consensus building to reconcile biodiversity with other priorities. Brigitte Baptiste, Director General, Humboldt Institute, Colombia, discussed the ecological dimension of developing sustainable development goals, focusing on the understanding of "awareness". She stressed the need to take different knowledge models and values into account when building communication and education strategies, and offered ideas for discussing awareness of the ecological dimension of the Sustainable Development Goals (SDGs), such as focusing on social learning processes in multicultural settings. She noted that communication has sometimes been used merely as a sales strategy, targeting the consumer, and therefore losing credibility; she pointed out that citizens were more than just consumers and that biodiversity's ultimate service may be linked to the wish "not just to live well, but with a meaning".

Lucy Mulenkey, Director, Indigenous Information Network, said that while the Strategic Plan would certainly be crucial for mainstreaming biodiversity into government policy, indigenous peoples and local communities have already amassed a long history of mainstreaming biodiversity into their own lives. She argued that governments should further recognise these groups for their significant contributions to, and knowledge about, conservation and sustainable use of biodiversity. Nevertheless, Mulenkey said there had been significant progress towards acknowledging these contributions, citing the International Indigenous Forum on Biodiversity as one key site where indigenous people could gather and speak with a single voice in the CBD and other important venues.

David Cooper, CBD Secretariat, underscored that the post-2015 agenda and the discussions on SDGs have been recognised as major opportunities to mainstream biodiversity into sustainable development. While recalling the importance of biodiversity, including the spiritual and cultural benefits, he also stressed the importance, in target implementation, of flexibility and addressing specific national contexts. He then presented a model including four types of goals that would insert biodiversity in the SDGs:

- on basic needs, such as food and water security, in which there is a clear link with the need for functional biodiversity ecosystems;
- on human wellbeing, for example, education, equality and gender, which are less directly related to biodiversity, but contribute to its management;
- on the maintenance of the planet's life support, including healthy and productive ecosystems, which could be based on the 2050 vision of the Strategic Plan and Target 14 on ecosystem restoration; and
- on overarching issues (e.g., poverty eradication and green economy) that could address the need to measure societal progress beyond GDP.

He preferred incorporating biodiversity concerns into other development goals, rather than aiming for a separate biodiversity target. Later, Conference Co-Chair Baste informed participants that the report of the UN High-level Panel on the Post-2015 Development Agenda, released during the Conference, included a set of 12 goals, with the ninth goal (managing natural resource assets sustainably) making reference to safeguarding ecosystems, species and genetic diversity.³

Our Future, Today's Biodiversity

The future-oriented session was chaired by Alfred Oteng-Yeboah, National Biodiversity Committee, C. an.. In this session, Jane Smart, IUCN, presented A. ICL sknowledge products for implementing the Aicli targ. is:

- the Red List of Threatened Species;
- the Protected Planet, powered by the World Database on Protected Areas;
- the Key Biodiversity Area Standard, which attempts to bring together existing international approaches for identifying areas of importance;
- the Red List of Ecosystems;
- the Natural Resource Governance Framework, aiming to assess effectiveness of legal and institutional arrangements impacting natural resources; and
- the Human Dependency on Nature Framework, which aims to quantify the nature and scope of household and community reliance on nature.

Nancy Colleton, IUCN Commission on Education and Communication, offered insights on how to communicate the science and value of biodiversity in a way that would motivate action. Hossein Fadaei, Acting Secretary, UN Environment Management Group (EMG), UNEP, presented the work of the EMG, noting that its main function was to enhance coordination among UN agencies at the highest level.

Roundtable Discussions

During the Conference, participants took part in an exercise during which, in parallel roundtables, they considered a set of identical questions relevant to the Aichi targets and submitted their findings and conclusions in real time to a team of facilitators via a web application. The roundtable questions considered (1) awareness of biodiversity values; (2) integration of biodiversity values into national and local development and poverty reduction strategies and planning processes and incorporation into national accounting and reporting systems; (3) incentives; and (4) sustainable production and consumption. They also asked how biodiversity should be reflected in, and contribute to, the development and achievement of SDGs.

Co-Chairs' Report

Entitled "Moment of opportunity", the Co-Chairs' report was prepared, summarising the Conference proceedings, as well as key messages from the Conference sessions. This report is intended as a living document, to be presented to the next meeting of SBSTTA. Its contents are summarised below.

Under the heading "Seizing the opportunity to invest in biodiversity for human wellbeing and development", key messages include the following:

- it is increasingly recognised that biodiversity and ecosyst mervices are fundamental to human well ring playing an essential role in food security and supporting many of the world's poorest people;
- the coverent financial climate in many parts of the world might be considered a "wake-up call" that highlights the unsustainable nature of many human activities;
- biodiversity and ecosystem services play such a fundamental role in human wellbeing that they should be reflected in the SDG framework; and
- resource mobilisation for the Aichi targets needs to take mainstreaming of biodiversity to a higher level, as this will determine the availability of biodiversity funding at both domestic and global levels.

Under the heading "recognizing and measuring the true values of biodiversity", the Report notes that decisions at all levels would lead to more sustainable outcomes if there were a clear recognition not only of the beneficiaries of decisions implemented, but also of the bearers of the environmental costs of implementation or failure to implement. National and company accounting should take full account of the costs of converting natural assets, as well as the revenues gained. When use is made of biodiversity and ecosystem services, there needs to be a true understanding of the value of using those resources, including all externalities, and methods for recognising the value of natural capital need to be more widely adopted and integrated into national reporting, reducing the reliance on GDP.

Under the heading "understanding the interplay between ecology, economy and society", the Report notes the importance of establishing governance arrangements, with active coordination between sectors, combined with appropriate safeguards – activities that should be at least as important for biodiversity mainstreaming as putting complementary policies in place. Governments have fundamental responsibilities that essentially encompass environment, economy and society, and they should take a

lead in integration across sectors. Development of common objectives across sectors, and increased efforts to develop and implement mutually supportive activities are essential but, at some point, trade-offs are inevitable. Citing excellent examples of the benefit of removing incentives and subsidies that harm biodiversity and ecosystem services, the report includes a call for this work to be built on. A much stronger multicultural approach to understanding values, and to including them in communication and education strategies, was another factor that should be considered, and coherence of biodiversity and social safeguards across international institutions could be a means of addressing underlying causes of biodiversity loss and promoting equity.

Under the heading "aligning policies, incentives and business within safe ecological limits", the Report stresses the value of improving processes for capture, management and synthesis of data, information and knowledge, in providing the basis for decision making, noting the importance of using and building on existing knowledge products, tools and experience, and finding new ways to share knowledge and experience widely. To this end, major new datasets and analyses provide tools which would lead to improved understanding of the impacts of a global economy and trade.

Annexed to the Report is a list of ideas for implementing the Strategic Plan that were identified by participants in the course of the roundtable exercise.

Notes

- 1 The Conference website, including links to the programme, presentations and additional material, is available at http://www.naturoppsyn.no/tk7. The IISD Reporting Services summary report is available at http://www.iisd.ca/biodiv/tcb/2013/.
- 2 The Co-Chairs' report is available as a SBSTTA document at http://www.cbd.int/sbstta/doc/trondheim-07-cochairs-report-en.pdf.
- 3 "A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development". The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda. New York: UN. Available at http://www.post2015hlp.org/wp-content/uploads/2013/05/UN-Report.pdf.

IPBES

Preparing to Give the Green Light

by Pierre "c...menville"

Established in April 2012 as an intergovernmental and independent body, the Intergovernmental Platfo. on Biodiversity and Ecosystem Services (IPBES) has started to deliver its first substantive work. IPFE 1 (Bonn, Germany, 21-26 January 2013) set up a heavy programme for its freshly constituted working bodie. ² its 10-member Bureau, chaired by Zakri Abdul Hamid (Malaysia) with four regional Vice-Chairs, charged with administrative tasks; and the 25 members of the Multidisciplinary Expert Panel (MEP) (five from each of the five UN Regions), led by co-Chairs Carlos Joly (Brazil) and Mark Lonsdale (Australia), who will be responsible for technical and scientific tasks under the supervision of the Plenary.³ Tasked with the preparation of many documents, including a work programme and a strategy for engaging stakeholders by IPBES-2, these bodies have submitted their work to a public consultation, facilitated by the interim IPBES Secretariat, supported by the United Nations Environment Programme (UNEP) Division on Environmental Policy Implementation. This consultation received more than 100 submissions from IPBES members and other interested stakeholders, demonstrating a slowly increasing level of interest in the IPBES and its work. However, several uncertainties remain in relation to stakeholder engagement.

Stakeholder Engagement Strategy

At the request of the IPBES Plenary, the International Union for Conservation of Nature (IUCN) and the

 IUCN Programme Office, Science and Knowledge Unit, IUCN Headquarters, Gland, Switzerland. International Council for Science (ICSU) worked in collaboration with the IPBES interim Secretariat and with relevant and interested stakeholders to prepare the first draft of a stakeholder engagement strategy. That process itself included a large stakeholder consultation, as well as a workshop, resulting in a preliminary draft that was submitted to the IPBES Bureau and MEP which, in turn, submitted the document to their own public consultation process, which is on-going.

In its current format for consultation, the proposed stakeholder engagement strategy (PSES) focuses on the implementation of the IPBES work programme, and leaves aside the still unresolved questions relating to the role of observers in the IPBES Plenary (discussed below). The PSES proposes a wide definition of stakeholders – significantly broader than that traditionally used by UN bodies. Not restricted to civil society organisations, it considers institutions, organisations or groups in four categories, based on their relationship to IPBES:

- a) those that contribute to IPBES activities;
- b) those that benefit from IPBES outcomes;
- c) those that support the participation of relevant individuals in IPBES; and
- d) those that are affected by the work of IPBES.

Although broad in scope, these criteria might help groups to consider whether they should engage with IPBES, reflecting the spirit of the guiding principles, which stand for a self-determination of stakeholders to engage. This spirit is also reflected in the PSES statement

on transparency – a notable innovation in such documents: "the engagement must be transparent, ensuring that stakeholder networks, constituencies, representatives and sources of funding are appropriately disclosed, including the obligation to declare potential conflict of interest, helping to establish the legitimacy of effective participation in IPBES activities".

The PSES also discusses the means of implementation of the strategy, calling for the creation of an advisory body, an action plan, and a dedicated budget, as well as suggesting the establishment of lines of responsibility among the Platform's constituents. At this stage, the PSES leaves open the question of the coherence between this strategy and the arrangements or partnerships that will be endorsed for implementing the IPBES work programme.⁵

Admission of Observers

While stakeholders are welcome to support the implementation of the programme, their level and mode of participation in the IPBES decision-making process is yet to be clarified. During IPBES-1, although the governments deliberated a draft policy for the admission of observers, they were not able to make conclusive decisions on several points. Hence the entire procedure for admitting observers remained in brackets. Discussions of this issue centred around the issue of majority voting *versus* consensus. In the absence of an adopted policy for observers, IPBES-1 was compelled to adopt an interim procedure on this issue, for use in its second session. This reticence and inability to agree sends a signal that the IPBES has reservations about opening itself widely to civil society – an impression that contrasts with the actual policies for admitting of serving that were followed at IPBES-1, for example, where the Plenary applied the procedure used by the UNEP Governing Council for the past three years.

The interim procedure that will apply IPBES-2 is based on systematic admission of obs. Pers represented at the first session and on admission of new observers as follows: any body or organisation, which is qualified in matters covered by the IPBES, should inform the IPBES Secretariat of its wish to be represented. The Bureau will review the list of applicants and will make recommendations

that will be communicated to members. Any member may communicate its view on the recommendations of the Bureau and, if there are concerns, will inform the applicant of such concerns. At the opening of the session, a member of the Platform may reject the admission of the applicant, and such rejection will stand unless overruled by two-thirds of the members. Considering its complexity, this mechanism will have to demonstrate its effectiveness, if it is to be the forerunner of the IPBES's permanent procedure.

Conclusion

The remarkable speed with which IPBES is working is the result of a momentum that took a long time to create. Many countries have pledged resources, the major scientific networks have offered collaboration, and much of the academic community has welcomed the new process. The landscape is therefore very favourable for IPBES, which needs now to demonstrate its ability to achieve quick results. Although the MEP has demonstrated its willingness to work closely with stakeholders, the challenges remain considerable, including those that arise when engaging civil society organisations that have not traditionally focused on biodivenity but span sectors that rely on ecosystem services or entage in critical activities, such as investment, production, regulation and enforcement.

The challenges regarding the engagement of stakeholders will come before the next session of the plenary (IPBES-2), 2–14 December, in Antalya, Turkey. This will be a baptism or fire for the IPBES Bureau and the MEP, which will nave to maintain consensus among governments while meaningfully including the stakeholders, so critical for the implementation of the programme, in the heart of the discussions.

Notes

- 1 See Lucas, S. (2012). "Biodiversity and Ecosystem Services Platform: Formal Establishment". *Environmental Policy and Law* 42(3): 143–144.
- 2 Reported online at http://ipbes.net/plenary/ipbes-1.html#one. See also $\it EPL 43(1)$: 25–29.
- 3 The first meetings of the Bureau and MEP are reported at http://ipbes.net/related-events/352-1st-full-mep-and-bureau-meeting-2.html.
- 4 IPBES/1/2
- 5 Online at http://ipbes.net/intersessional-process/current-review-documents-ipbes2.html.

Aarhus Convention

Compliance Committee: 40th Meeting

by Elsa Tsioumani*

The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention), adopted within the framework of the UN Economic Commission for Europe (UNECE), is a multilateral environmental agreement (MEA) that takes a rights-based approach

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to environmental protection: it links environmental and human rights, as well as government accountability and intergenerational equity, by awarding procedural rights to members of the public of present and future generations to live in an environment adequate to their health and wellbeing (Article 1). In sum, the Aarhus Convention provides for three key elements: the right of everyone to have access to environmental information that is held by

public authorities, the right to participate in environmental decision making, and the right of access to justice with regard to decisions that appear to have contravened environmental law. As such, the Convention focuses on interactions between authorities and the public in a democratic context.²

The Aarhus Convention's Compliance Committee was established by the first Meeting of the Parties (MoP) in October 2002³ on the basis of Article 15, which required the Parties to establish arrangements for reviewing compliance. The Committee is composed of nine members serving in their personal capacity, each of whom is nominated by either a Party, Signatory or non-governmental organisation (NGO), and elected by the MoP. It considers any submission, referral or communication brought before it by Parties, the Secretariat or the public respectively; and monitors, assesses and facilitates the implementation of, and compliance with, the reporting requirements. It reports on its activities at each ordinary MoP and makes such recommendations as it considers appropriate. Upon its recommendations, the MoP may decide upon any appropriate measures to bring about full compliance, providing advice to the Party concerned, facilitating assistance to that Party, making recommendations, issuing declarations of non-compliance or cautions, suspending the special rights and privileges, or taking any other measures that are non-confrontational, non-judicial and consultative.⁴

In continuation of the cooperation recently initiated between *EPL* and the Aarhus Convention Secretariat, this report provides an update on the Compliance Committee's deliberations at its 40th meeting, held from 25–28 Ma. In 2013, in Geneva, Switzerland. The meeting coincidea ith the first meeting of the informal network of the Cr. its of the compliance/implementation bodies under the ECE MEAs, which took place on 25 March 2013, which is also reported herein.

At its 40th meeting,⁵ the Aarm. Convention's Compliance Committee, under the chairmanship of Jonas Ebbesson, finalised its draft findings with regard to communications C/45 and C/60 (UK),⁶ C/61 (UK)⁷ and C/62 (Armenia);⁸ and adopted its findings with regard to communication C/59 (Kazakhstan).⁹ Among other activities, the Committee also confirmed the adoption of the edited version of its findings and recommendations with regard to communications C/53 (UK)¹⁰ and C/58 (Bulgaria),¹¹ adopted at its 38th meeting in September 2012.¹²

Communications Regarding the UK

Concerning communications C/45 and C/60 regarding compliance by the UK, the Committee completed its draft joint findings in closed session during its 40th meeting, later finalising its findings and recommendations during its 41st meeting, which will be described in detail in *EPL* 43(6).¹³

Communication C/45 had originally been submitted to the Committee in September 2010 by the Kent Environment and Community Network (KECN), alleging a general failure of the UK to properly implement several provisions of Article 9 on access to justice. In particular, the communication alleged that the only way for third parties

to trigger a substantive review of a planning decision is to request that the planning decision be called in by the Secretary of State before the permission is granted, and that a public inquiry take place. However, according to the communication, the Secretary of State has very wide powers to decide whether to call in such a decision and this happens rarely, while it is beyond the competence of the Local Government Ombudsman to review the substance of such a matter. According to the communication, available judicial remedies in the UK are not adequate, because they concern the procedural legality of a decision and not its substance, while the costs associated with judicial remedies are prohibitively expensive. To illustrate this failure, the communication referred to the example of the planning application for the Sainsbury's superstore in Hythe, Kent. In June 2011, KECN submitted additional information, including new allegations of non-compliance by the United Kingdom with article 6, paragraphs 1 (b), 2, 3, 4, 6, 8, 9, and 10; article 7; and article 9, paragraphs 2 and 3, of the Convention.¹⁴

Communication C/60, submitted by T. Ewing, a member of he public, alleged that the UK does not provide full rights of ablic participation (such as the right to give oral presentations) to third-party objectors at planning committee hearings of local authorities, and thus fails to co. ply with Articles 3(1) and 3(9) (general provisions) and Article 6(7) (procedures for public participation) of the Aarhus Convention. In addition, the communication alleged that third-party objectors in the UK are not currently granted a right of appeal to the Planning Inspector, and may only apply for judicial review to the High Court in respect of a planning permission that has been granted either on the papers or after a full planning committee hearing. It alleged that this review is not adequate, effective, fair or equitable, while the costs incurred may be prohibitively expensive, in violation of Article 3(1) and Articles 9(2), 9(3) and 9(4) on access to justice.15

The Committee had decided at its 36th meeting to consider these two communications jointly. Consideration focused on the allegations regarding screening decisions subject to Article 6(1)(b) of the Aarhus Convention, the procedure at public planning meetings and its compliance with Article 6(7), and the role of local investment plans (LIPs) (adopted by local public-private partnerships, including local strategic partnerships) in the planning process and their relationship to Articles 7 (public participation) and 9. The Committee decided not to examine the general compatibility of the UK planning laws with the Convention noting that the communications were vague as to how these laws fail to comply with the Convention; while the UK provided sufficient prima facie information to illustrate that there are numerous opportunities for public participation during the planning process. The Committee then examined the environmental impact assessment (EIA) screening decision of 2 June 2009 issued by the Shepway District Council with regard to the superstore referred to in communication C/45, comparing it against Aarhus Convention Article 6(1)(b), which requires Parties to apply the Convention's provisions on public participation to any decisions on proposed activities not listed in Annex I of the Convention that may have a significant effect on the environment. The Committee found that the communicants failed to substantiate that the authorities misapplied their discretionary power under Article 6(1)(b). It also concluded that the fact that some local authorities only provide for participation of members of the public at planning meetings via written submissions, as stressed in communication C/60, does not as such constitute non-compliance with Article 6(7).

The Committee further considered the allegation that LIPs may well be part of the decision on plans or programmes and thus within the purview of Article 7 of the Convention. While there is no statutory requirement for the authorities to prepare LIPs, and LIPs are not part of a statutory development plan, there appears to be a growing trend for local authorities in the UK to set their local planning priorities framework through LIPs. The Homes and Communities Agency has developed a Good Practice for local investment planning that encourages integration of community involvement. However, this document remains guidance for good practice rather than a mandate, so that authorities continue to have some discretion whether to engage all stakeholders rather than only engaging with prospective developers. The Committee drew attention to the fact that, in order to ensure investment flow for future projects, there is a risk that authorities consult only with potential developers in preparing the LIPs, and do not involve other members of the public. In addition, although LIPs are not material to the actual planning decisions, they seem to be evolving into a *de facto* element of planning. The Committee thus considered it highly unlikely that LIPs would have no effect at all on subsequent proming decisions, if consultations have already been arried out with prospective investors. Emphasising that Art. le 6(4) requires "early public participation, wher all options are open and effective public participation can take place", both in relation to activities under Article and in relation to plans and programmes under Article 7, but noting that the practices involved in the preparation of the LIPs have not crystallised across the UK and largely depend on the discretion of the authority to engage all stakeholders in public participation, the Committee concluded that it is not in a position to conclude whether the UK fails to comply with its obligations arising from Article 7. It noted however that it "considers that participation of the public in the preparation of the LIPs and related procedures is highly appropriate".16

With regard to the review procedures and issues related to access to justice, the Committee recalled that the outcome of an EIA screening decision is subject to the requirements of Article 9(2) of the Convention, under which members of the public "shall have access to a review procedure before a court of law and/or another independent and impartial body established by law, to challenge the substantive and procedural legality of any decision, act or omission subject to the provisions of Article 6". The Committee noted that the right of an applicant to appeal to the Secretary of State for Communities and Local Government or the Planning Inspectors is not a procedure addressed under Article 9(2) of the Convention, but rather a means by which an applicant

whose planning decision has been refused may appeal before an executive body, not constituting a court of law. It was noted that the communicants in communication C/45 did not pursue judicial review of the screening decision at stake, for reasons of the expenses probably involved in such a review procedure as well as the likelihood that only the procedural legality of the screening decision could be raised in such a review. The issue of costs involved in judicial review procedures in the UK has already been addressed in communication C/33,17 in which the UK was found not to be in compliance with Article 9(4). These findings were maintained in the present case. The possibility of obtaining a review of substantive legality was also addressed in the findings in C/33, and those conclusions are also maintained: the Committee, while maintaining its concerns regarding substantive review,18 did not conclude that the UK failed to comply with Article 9(2) in this respect. In sum, the Committee did not come to a new finding that the UK was not in compliance, and made no additional recommendations beyond pointing to its previous findings and recommendations.

Communication C/61 alleged a failure of the UK to comply ith provisions of the Convention on public participa ion and access to justice in relation to the planning and construction of the Crossrail project in the metropolitan Lone n area. In particular, the communication alleged that the Crossrail Act 2008 misapplied the requirements for obtaining consent relating to conservation areas and listed buildings, which normally provided for public participation. The Crossrail Bill, authorising the construction of a high-frequency railway, followed a threeyear hybrid-bill process to become Act of Parliament. A hybrid bill in the UK is a bill that mixes the characteristics of public and private bills. Public bills introduce legislative changes applicable to all, while private bills only change the law as it applies to specific individuals or organisations, rather than the general public. A hybrid bill is a public bill that affects the private interests of an individual, a group of individuals or an entity. The process is usually used by the government on behalf of private-sector investors to obtain authorisation for large-scale projects that are of national interest but may have wide effects on private interests. A hybrid bill may be challenged before a court of law when there is a claim for a declaration of incompatibility with the Human Rights Act 1998 or of breach of EU law. The communicant alleged that public participation took place only during consideration of the Crossrail Bill itself, in the form of petitions to the House of Lords etc., but that no public participation took place concerning the demolition of listed buildings, as required by specific Acts.

The Committee considered the application of the Convention to actions taken *via* the hybrid-bill system of the UK. It argued that the Crossrail Act is a decision falling under Article 6, noting that the Parliament in this respect is no longer acting in a legislative capacity, but rather as the public authority authorising a project, and thus does not fall within the exceptions of Article 2(2). The Committee further examined the scope of the review procedures after adoption of the Crossrail Act, or any act adopted according to the hybrid-bill procedure authorising

a specific activity. In the case of the Crossrail Act, it noted that no challenge was brought before a court of law, and therefore the Committee was not in a position to determine whether the legal remedies available would have enabled members of the public to challenge the Crossrail Act as required under Article 9(2). Regarding the Crossrail Act, therefore, the Committee did not find the UK to be in noncompliance with Articles 6(2) and 9(2).

Communication Regarding Armenia

Concerning communication C/62 regarding compliance by Armenia, the Committee completed its draft joint findings in closed session during its 40th meeting, and finalised them during its 41st meeting, which as noted above will be described in detail in *EPL* 43(6).

Communication C/62 concerning compliance by Armenia with several provisions of Article 9 was submitted by the NGO Ecoera because the Cassation Court had recently reversed its earlier holdings with respect to the standing of NGOs in environmental matters. 19 The communication related to the issuance and renewal of licences to a developer for the exploitation of copper and molybdenum deposits in the Lori region of Armenia. The communicant challenged the legality of several administrative acts relating to that project in the administrative court. Following rejection of the application as inadmissible in the first instance and in the appeal court, the Court of Cassation determined the complaint admissible and referred it back to the administrative court to consider the merits, noting that Ecoera, a properly registered NGO, falls within the definition of the "public concerned" under the Aarhus Convention and, in connection with it. state ory aims, enjoys the right to legal remedy in ma ters it lating to environmental protection. However, the administrative court again rejected Ecoera's application on the grounds that Ecoera may not question environmental decisions issued by institutions. On 1 April 211, the Court of Cassation dismissed the communicant's application and reversed its earlier holding, concluding that the only entities that may challenge an act, action or inaction are those whose rights have been directly violated by that act. The Committee, noting that Article 9(2) of the Convention provides that the NGO should be granted access to review procedures, concluded that the Court of Cassation's first interpretation had been in accordance with the Convention. It noted that the wording of the legislation does not run counter to the Convention, but that the Court of Cassation's 2011 decision failed to meet the standards set by the Convention. Thus, it concluded that Armenia had failed to comply with Article 9(2).

Communication Regarding Kazakhstan

Communication C/59, concerning compliance by Kazakhstan, was submitted by the Kazakh public association "National Analysis and Information Resource" (NAIR). The communication alleged that Kazakhstan failed to comply with the provisions of Article 6 of the Aarhus Convention by limiting NAIR's opportunity to participate in the decision-making process and to express its opinion during the conduct of the State environmental review (*expertiza*) for the "South West Roads Project: Western Europe-Western China International Transit Corridor" Project, in the South Kazakhstan Oblast, a project financed by the International Bank for Reconstruction and Development among others. The communicant had neither used available domestic remedies nor excluded the possibility of doing so.

The Committee examined several aspects of the Kazakh legislation and its application in the specific case, and concluded that Kazakhstan had failed to comply with the Convention requirements on several grounds, including, among others, the fact that the legislation in question uses the term "interested persons", in addition to the terms "the public" and "the public concerned" in its provisions relating to public participation, and that this multiple terminology may lead to confusion. It also noted that the 2012 rules on public hearings do not provide any mandatory requirement that public notification be timely, and thus do not meet the requirements of Article 6(2), in contrast to the previous regulation according to which a notification should be made 20 days prior to a public hearing. Another issue related to the fact that the current legal arrangements narrow the right of the public, permitting the submission of comments only (1) the environmental impact assessment (OVOS) report²⁰ and not on all project-related documentation. The Committee concluded that these limitations are not in line with the requirements of Article 6(7). It also noted that legislation regulating the procedure of public hearings, which requires the public comments to be reasoned and based on the study of documentary information, fails to guarantee the full scope of the rights envisaged by the Convention, as it introduces criteria for the consideration of the submitted comments.



The Compliance Committee in session

Photo: Aphrodite Smagadi

Other Actions by the Commission

In addition to the foregoing, the work of the Committee included a decision to close the file of communication C/67 concerning compliance by Denmark,²¹ as the situation had, since the communication, been redressed at the domestic level. In open and closed sessions, it entered into discussion with representatives of the Parties and communicants concerned. on communications C/69 concerning compliance by Romania,²² and C/70²³ and C/71²⁴ concerning compliance by the Czech Republic. It finally considered the admissibility of five new communications, finding two of them (C/81 (Sweden)²⁵ and

 $C/83~(UK)^{26}$) admissible on a preliminary basis, and three others (C/79 (Italy), C/80 (Croatia) and C/82 (Norway)) inadmissible.

Following up on previously addressed specific cases of non-compliance, the Committee focused on Belarus and Ukraine, considering how well they have responded to MoP decisions IV/9b and IV/9h, respectively. With regard to Belarus, the Committee noted that the information that the country provided did not allow for an accurate evaluation of progress achieved, and decided to send a letter requesting more concrete information on the legislative process. It also noted with regret that Belarus' response concerning the alleged arrest and detentions of environmental activists was unsatisfactory, again deciding to call for more specific information.²⁷ On Ukraine, the Committee noted the country's continuous failure to implement the public participation procedures of the Convention over the past eight years. It also cited the fact that a draft law related to the requested amendments had in the meantime been withdrawn from parliamentary proceedings. It held a teleconference with a representative of Ukraine, who provided information on the on-going procedures for the approval of legislative amendments, and requested a response to an observer's statement that the new draft law was not open to public comment, and that there was no draft legislation with respect to public participation, which had significantly deteriorated especially in the context of State *expertiza*.

Informal Network of the Chairs of UNECE Compliance/Implementation Bodies

The first meeting of the informal network of the Chars of the compliance/implementation bodies under the CE MEAs²⁸ focused on launching a network for the change of information and lessons learned and an exploration of ways of improving implementation and effectiveness of the implementation/compliance in chanisms in the region.²⁹ Participating Chairs noted that whether mandated to review "compliance" or promote "implementation", the mechanisms share many common features, but also have very different ones, highlighting different practices and traditions, dictated by the nature of the instrument and the culture developed within the respective body. The Chairs welcomed the initiative and agreed to continue the exchange of ideas by electronic means. A second meeting of the network was tentatively scheduled for March 2014.

Notes

- 1 The Convention was adopted on 25 June 1998 in Aarhus, Denmark, at the Fourth Ministerial Conference of the "Environment for Europe" process. It entered into force on 30 October 2001 and as of April 2013 it has 46 Parties.
- 2 See http://www.unece.org/env/pp/introduction.html.
- 3 Decision I/7 on review of compliance, Doc. ECE/MP.PP/2/Add.8. After their finalisation, the draft findings on communications C/45, C/60, C/61 and C/62 were forwarded to the Parties concerned and the communicants for comment. The Committee thereafter took into account the comments received and adopted its findings. The advance unedited versions of the findings are available on the Committee's website, *ibid.*
- 4 For additional information on the organisation and work of the Committee, see Tsioumani, E., in cooperation with the Aarhus Convention Secretariat. 2013. "Compliance Committee: Deliberations". *EPL* 43(1): 46–50, at 46.
- 5 The meeting's documents are available at http://www.unece.org/index.php?id=31689. The official report of the meeting is available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/CC-40/ece.mp.pp.c.1.2013.2.pdf.

- 6 Findings and recommendations with regard to communications ACCC/C/2010/45 and ACCC/C/2011/60 concerning compliance by the United Kingdom of Great Britain and Northern Ireland, available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/C2010-45/Findings/C45C60_UK_Findings_C45C60_UK_Finding
- 7 Findings and recommendations with regard to communication ACCC/C/2011/61 concerning compliance by the United Kingdom of Great Britain and Northern Ireland, available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/C2011-61/Findings/C61UKFindings_CC41.doc.
- 8 Findings and recommendations with regard to communication ACCC/C/2011/62 concerning compliance by Armenia, available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/C2011-62/Findings/C62_Arm_Findings_CC_41.doc.
- 9 The documentation regarding communication ACCC/C/2011/59 concerning compliance by Kazakhstan is available at http://www.unece.org/env/pp/compliance/ Compliancecommittee/59TableKZ.html.
- 10 Findings and recommendations on communication ACCC/C/2010/53 concerning compliance by the United Kingdom of Great Britain and Northern Ireland, available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/CC-40/ece.mp.pp.c.1.2013.3_eng.pdf.
- 11 Findings and recommendations with regard to communication ACCC/C/2011/58 concerning compliance by Bulgaria, available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/CC-40/ece.mp.pp.c.1.2013.4_eng.pdf.
- 12 Supra, note 4.
- 13 The 41st meeting of the Compliance Committee was held from 25–28 June 2013, in Geneva, Switzerland. The official report of the meeting was not available to the author at the time of writing of this report, and will be reported in *EPL* 43(6). In the meantime, meeting suments are available at http://www.unece.org/index.php?id=32786.
- 14 Case docume. thon is available at http://www.unece.org/env/pp/compliance/ Compliancecon. itte: '5TableUK.html.
- 15 Case d cume, ation is available at http://www.unece.org/env/pp/compliance/compliancec/mittee/60tableuk.html.
- 16 Supra, note 6, para. 82.
- 17 Communication ACCC/C/2008/33, documentation available at http://www.unece.org/env/pp/compliance/Compliancecommittee/33TableUK.html.
- 18 *Ibid.*, findings and recommendations with regard to communication ACCC/C/2008/33, para. 127, available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/C2008-33/Findings/ece_mp.pp_c.1_2010_6_add.3_eng.pdf.
- 19 This issue had been subject to the Committee considerations under communication C/41Communication ACCC/C/2009/43. Documentation available at http://www.unece.org/env/pp/compliance/Compliancecommittee/43TableArmenia.html
- 20 [The acronym for EIA in Russian is essentially OVOS. Editor.] The OVOS procedure starts with the developer submitting the application to proceed with the project, continues with the developer commissioning the preparation of the OVOS report, including the organisation of public participation, and ends with the developer submitting the final OVOS report, including the report on public participation, to the authorities responsible for expertiza.
- 21 Communication ACCC/C/2012/67. Documentation available at http://www.unece.org/env/pp/compliance/compliancecommittee/67tabledk.html.
- 22 Communication ACCC/C/2012/69. Documentation available at http://www.unece.org/env/pp/compliance/compliancecommittee/69tableromania.html.
- $23 \quad Communication \ ACCC/C/2012/70. \ Documentation \ available \ at \ http://www.unece.org/envenv/pp/compliancecommittee/70 tablecz.html.$
- 24 Communication ACCC/C/2012/71. Documentation available at http://www.unece.org/envenv/pp/compliancecommittee/71tablecz.html.
- 25 Communication ACCC/C/2013/81. Documentation available at http://www.unece.org/env/pp/compliance/compliancecommittee/81tablesweden.html.
- 26 Communication ACCC/C/2013/83. Documentation available at http://www.unece.org/env/pp/compliance/compliancecommittee/83tableuk.html.
- 27 Compliance with Aarhus Art. 3(8) was not addressed by decision IV/9b. However, the Committee's action in CC-40 was based on information received in response to its earlier request for further clarification. See Report of the 38th session of the Aarhus Compliance Committee, ECE/MP.PP/C.1/2012/8, paras 44-45.
- 28 Including the Implementation Committee under the Convention on Long-range Transboundary Air Pollution and its Protocols; the Implementation Committee under the Convention on Environmental Impact Assessment in a Transboundary Context and its Protocol on Strategic Environmental Assessment; the Implementation Committee under the Convention on the Protection and Use of Transboundary Watercourses and International Lakes; the Compliance Committee under the Protocol on Water and Health; the Working Group on Implementation under the Convention on the Transboundary Effects of Industrial Accidents; the Compliance Committee under the Aarhus Convention; and the Compliance Committee under its Protocol on Pollutant Release and Transfer Registers.
- 29 Chair's Summary, available at http://www.unece.org/fileadmin/DAM/env/pp/compliance/CC-40/Network_of_Chairs_meeting_Summary_FINAL.pdf. See also the joint informal networks under the UNECE at http://www.unece.org/environmental-policy/treaties/envenvironment-conventions/all/informal-networks.html.

OTHER INTERNATIONAL DEVELOPMENTS

ECE/INC-Forests4

Negotiations Resume

by Annalisa Savaresi*

The Fourth Session of the Intergovernmental Negotiating Committee for a Legally Binding Agreement on Forests in Europe (INC-Forests4) convened in Warsaw, Poland, 10–14 June 2013. INC-Forests4 was meant to be the last session to finalise "a holistic, legally binding framework forest agreement" (LBA), strengthening cooperation between the States of the European continent, to be considered, and possibly adopted and opened for signature, at an extraordinary FOREST EUROPE Ministerial Conference to be held by the end of 2013.1

The delegates from 33 countries present in Warsaw, however, did not manage to reach an agreement on all outstanding issues for negotiation. After prolonged consultations, the session was suspended until a later date (place to be determined). This report reviews progress achieved at INC-Forests4, summarising the issues the remain outstanding.

Progress in Warsaw

When it opened, INC-Forests4 was expected to work pursuant to an ambitious negotiation agendal relucting the finalisation of the text of the LBA and arrangements for its presentation to the extraordinary FOREST EUROPE Ministerial Conference. Negotiations a regely centred around the finalisation of the LBA and regotiating text, which had come to Warsaw in a relatively advanced stage of drafting.

At the conclusion of the resumed session of INC-Forests3 (St Petersburg, April 2013), delegates had agreed to substantially restructure the text, following a proposal by the Swiss Federation. Some portions of text had been agreed *ad referendum*, including the preamble, as well as some substantive provisions (for example, those addressing the productive functions of forests). Most sections of the negotiating text, however, remained in a bracketed form, including several that have fundamental implications for the scope of the agreement – such as the definition of forest, and forests' contribution to global carbon cycles – as well as crucial operational arrangements, including naming the institution(s) that will act as depositary and/or provide secretariat services.

In Warsaw, delegates made substantive progress on most elements of the negotiating text, working in plenary, and in informal contact groups, aided by a legal expert group established in St Petersburg. By the time it was decided to recess INC-Forests4 pending later resumption, the draft negotiating text included a preamble, 27 articles, and two annexes (on arbitration and conciliation, respectively).

The preamble of the draft negotiating text was entirely agreed ad referendum, including references to the Rio Declaration of Environment and Development² and the main interactional instruments directly and indirectly dealing with forests. It therefore recognises the importance of intern, ional cooperation and sustainable forest manag merit (SFM) in implementing the decisions taken ur der the Convention on Biological Diversity (CBD) (in Juding the Aichi Biodiversity Targets), the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification and the Ramsar Convention on Wetlands.³ These references may be regarded as an expression of the intention not to significantly depart from the body of international instruments dealing with forests, particularly those recognised within the framework of FOREST EUROPE.4 The preamble also mentions the United Nations Declaration on the Rights of Indigenous Peoples, acknowledging its relevance.5 This recognition may be regarded as particularly significant in light of the vast body of international and regional human rights law on the rights of indigenous peoples and other forest-dependent communities in relation to forests and their resources.

Prior to recessing, INC-Forests4 was able to adopt most substantive articles of the drafting negotiating text *ad referendum*, and to get past the controversies concerning terms and definitions. The definition of forest that was agreed in Warsaw builds upon the UN Food and Agriculture Organization's (FAO's) definition, but leaves States free to apply their national definitions, so long as the Secretariat is duly informed of this choice and of the definition to be applied.⁶ This compromise solution potentially leaves the door open for considerable difference in interpretation among the Parties, regarding the object of the LBA. The section on definitions also includes a definition of "illegal harvesting", reflecting an apparently definitive departure from the use of the term "illegal logging", which appeared in earlier editions of the draft negotiating text.

In outlining the principles that parties must respect when implementing the LBA, the draft acknowledges that each party is responsible for SFM on its territory and for the development and implementation of policies that are "adequate to its respective national conditions and needs".⁸

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The principles also provide that the Convention is intended to reinforce and strengthen the implementation of SFM "in a way that is mutually supportive with existing rights and obligations under other multilateral agreements relevant to this Convention". This clause, which appears in several MEAs, constitutes a further expression of the negotiators' intention to align the LBA with extant instruments.

As stated in the draft, the LBA's objectives are wideranging in scope, including strengthening SFM; enhancing the contribution of forests and forestry to the solution of global challenges; and maintaining, protecting, restoring and enhancing forests' health, productivity, biodiversity, vitality and resilience, and capacity to adapt to climate change and combat desertification.¹⁰ The text further mentions the need to ensure that forests contribute effectively to sustainable development.¹¹



In a late-night session

Courtesy: IISD-Earth Negotia. vns Bulletin

Although ambitious, these objectives are not coupled with an equally ambitious set of obligates. s. In fact, the substantive provisions of the LBA are broadly worded in a manner typical of framework conventions, setting out a series of objectives and principles, but leaving the definition of more concrete obligations to subsequent instruments. In further indication of this approach, the draft negotiating text specifically contemplates the adoption of protocols.¹²

Regarding SFM, the draft mandates that parties take measures to ensure that SFM be implemented in a manner that takes into account the implementing country's specific forest conditions and national priorities.¹³ It identifies a set of rather general criteria for SFM, and requires parties to develop, implement and update national forest programmes or equivalents, making explicit reference to Vienna Resolution 1.¹⁴ Parties to the LBA are also required to strengthen and enhance international cooperation and coordination to foster coherence and avoid duplication of or overlap with the work of relevant international agreements.¹⁵

The substantive obligations of parties are encapsulated in a series of provisions agreed *ad referendum* concerning forests' contribution to global carbon cycles; forest health and vitality; forest biodiversity; and forests' productive, protective and socio-economic functions. ¹⁶ These

provisions are hardly ground-breaking, instead reiterating commitments found in other international and FOREST EUROPE instruments.

INC-Forests4 rejected an important suggestion by Iceland that the text should include a mention of deforestation in its provision concerning forests' contribution to global carbon cycles.¹⁷ Although deforestation is not seen as significantly affecting the continent of Europe, a provision addressing it in the context of the LBA could have had important international trade implications, and led to innovative developments, if the LBA were ever opened for accession by non-European States.

The remainder of the negotiating text deals with operational matters, establishing the Conference of the Parties (CoP), Secretariat, and Compliance Committee; and providing mechanisms for the settlement of disputes. INC-Forests4 delegates could not reach an agreement prior to recessing the session on how to finalise the text concerning these issues and the related text remains partially bracketed. Delegates also started drafting a document by which the final draft agreement would be presented to ministers at the Extra redinary FOREST EUROPE Ministerial Conference. The text however remains at an early stage of drafting, pending decisions on fundamental operational arrangements – the selection of institution(s) that will be acting as depositary and/or providing secretariat services.

Outstanding Issues

Agreement on the institution(s) that will serve as the depositary and/or host for the Convention and that will provide secretariat services proved to be the most controversial issue on the negotiating table in Warsaw. Pursuant to the Oslo Mandate, the United Nations Economic Commission for Europe (UNECE), FAO, the United Nations Environment Programme (UNEP) and the European Forest Institute (EFI) have jointly serviced the INC-Forests process. ¹⁹ Their mandate, however, does not provide any indication as to which institution ought to provide secretariat services and serve as depositary once the LBA has been adopted.

This matter had already been debated at length in earlier INC-Forests sessions, where delegates agreed to bring the LBA under the UN umbrella.²⁰ This preliminary decision however did not go so far as to definitively identify the institution(s) that would directly service the LBA.

In Warsaw, Chair Jan Heino explained that for the LBA to be adopted under the UN umbrella, either the FAO Director-General or the UN Secretary-General would have to act as depositary.²¹ With regard to the institutions performing secretariat functions, the main options were either the FAO or UNECE or both, possibly with the support of UNEP.²² During the Warsaw session, delegates heard representatives from the UNECE and FAO exchanging views and making their cases for selecting their respective agencies as host for the LBA Secretariat. In this process, the European Union re-opened another option – that of involving the EFI in servicing the Secretariat. The Swiss Federation proposed that the Secretariat be hosted in Geneva, creating competition for the candidature of Bonn, which had been put forward by Germany at INC-Forests3.

The largely political decision over these institutional questions is of some consequence for the future of the LBA, with regard to both the adoption process, and the prospects for opening the LBA to States outside Europe.²³ The implications of the choice were identified in a paper circulated by Switzerland at INC-Forests3, and recirculated in Warsaw, as well as in the numerous documents analysed at earlier INC-Forests sessions.²⁴ The emergence of institutional jealousies is unsurprising, as this type of wrangling has historically characterised the evolution (and lack thereof) of the international regime on forests.

Given that a decision on institutional matters was integral to most of the remaining outstanding questions in this negotiation, Chair Heino personally conducted informal consultation on the issue for much of the week. Unfortunately, little progress was made, and the text of the negotiating draft remains largely non-finalised.

Delegates could also not agree on how to finalise other portions of the draft negotiating text, from the title of the agreement to its rules on voting and the Compliance Committee. The name debate ultimately revolves around the still open option of allowing accession by non-European countries. The title will presumably either indicate that the instrument is international, or emphasise its more regional/ European focus.

A thornier question related to voting and the treatment of regional economic integration organisations.²⁵ The delegates of Iceland, Norway, the Russian Federation Switzerland, Turkey and Ukraine expressed support for limiting the exercise of the right to vote by reg onal economic integration organisations to those of their member States present in each session of the C P his suggestion was opposed by the EU, which argue? that it was contrary to established practice under umerous international environmental agreements, including the UNFCCC, the Kyoto Protocol, the CBD and the UNECE Convention on Access to Information . blic Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).²⁷ Switzerland objected that the recently negotiated Minamata Convention²⁸ may be interpreted as a move away from this practice, but the EU disagreed with this interpretation. The struggle over the right to vote is ultimately a political one between the EU and the non-European States, which are understandably reluctant to grant the EU an automatic voting majority at CoP sessions. No compromise on the issue could be reached in Warsaw and it is going to be interesting to see how delegates will address this important question at the resumed session of INC-Forests4.

Other outstanding matters include the establishment of the Compliance Committee; and the admission of observers to the CoP.²⁹ As it stands, the LBA text requires parties to monitor and report to the CoP on their progress in implementing SFM and on measures taken to implement the LBA.³⁰ In Warsaw, delegates abandoned the idea of an expert mechanism to review parties' reports, opting instead to entrust the Secretariat to "review, analyse, compile and report" information submitted by parties on the status and development of forests and progress in the implementation of SFM, drawing upon "the necessary

technical expertise".³¹ Delegates also agreed that a "facilitative, non-confrontational, transparent, cooperative and recommendatory" Compliance Committee should be established.³² This text remains bracketed, however, with regard to the information that the Compliance Committee may consider in carrying out its functions.³³ Some delegates suggested that the Committee should be authorised to consider "any information it deems credible and relevant", while others preferred a more restrictive approach.³⁴ The election of the members of the Compliance Committee and adoption of its terms of reference and rules of procedure by consensus were also subject to some debate and that text, too, remains bracketed.³⁵

Questions concerning the role of observers and public participation have emerged both in connection with the work of the Compliance Committee and attendance at CoP sessions. In Warsaw, the Russian Federation rejected suggestions that Committee members might be drawn also from stakeholder organisations and that such organisations might make submissions to the Compliance Committee. Thus, the text co. cerning the admission of observers at CoP sessic is remains bracketed. As it stands, therefore, the LBA succe on public participation issues is rather far from progressive.

Cyclusion

In Warsaw, delegates managed to make substantive progress on numerous matters, although consensus often entailed a significant lowering of the level of ambition reflected in the draft LBA. The negotiating text that emerged prior to the recess of INC-Forests4 is thus the result of a careful compromise, whereby delegates agreed on largely uncontroversial principles and objectives, without significantly raising the bar already reflected in the array of existing international and regional instruments dealing with forests. Arguably, it is the law-making process itself that is most interesting, given that it provides for the first time a platform to formalise a vast body of informal and soft-law forest instruments into a unitary, legally binding instrument. Viewed in this way, the fact that the process stumbled over issues that are largely procedural in nature, and do not really have much to do with forests, is seen to be less significant. These issues remain outstanding, reminiscent of controversies that have historically affected international processes dealing with forests.

It remains to be seen whether the resumed session of INC-Forests4 will manage to reach compromise on the institutional questions that are hampering the process. The INC-Forests Bureau indicated that the resumed session will take place in Switzerland, 6–8 November 2013. With the extraordinary FOREST EUROPE Ministerial Conference to be held by the end of 2013, however, the clock is ticking fast for INC-Forests.

Notes

- $1\,$ Oslo Ministerial Mandate for Negotiating a Legally Binding Agreement on Forests in Europe, 2011, at 23 and 29.
- $\label{eq:local_potential} 2 \quad INC4 \ Draft \ Negotiating \ Text-14 \ June \ 2013-10:30 am, \ Preamble, \ para. \ 6, available at \ http://www.forestnegotiations.org/INC/INC4/insession_documents.$
- 3 Ibid., Preamble, paras 9-10.
- 4 Ibid., Preamble, para. 11.
- 5 Ibid., Preamble, para. 8.

- 6 Ibid., Article 1(a).
- 7 Ibid., Article 1(j).
- 8 Ibid., Article 3(a).
- 9 Ibid., Article 3(f).
- 10 Ibid., Article 2(a-d)
- 11 Ibid., Article 2(e).
- 12 *Ibid.*, Article 19.13 *Ibid.*, Article 4(1).
- 14 *Ibid.*, Article 4(2)(b). Vienna Resolution 1, Strengthen Synergies for Sustainable Forest Management in Europe Through Cross-Sectoral Co-operation and National Forest Programmes, adopted by the Fourth Ministerial Conference on the Protection of Forests in Europe, held in Vienna, Austria, 28–30 April 2003.
- 15 Supra, note 2, Article 4(2)(d).
- 16 Ibid., Articles 5-10.
- 17 "Summary of the Fourth Session of the Intergovernmental Negotiating Committee for a Legally-Binding Agreement on Forests in Europe (INC-Forests 4)", at 4. *INC-Forests Bulletin* Volume 180, Number 6, Monday, 17 June 2013 (IISD Reporting Services).
- 18 Available at http://www.forestnegotiations.org/INC/INC4/insession_documents.
- 19 Supra, note 1, at 27.
- 20 Cf. Savaresi, A. (2013). "Framework Negotiations Continue". Environmental Policy and Law 43(2): 102–4.

- 21 Supra, note 17, at 8.
- 22 Ibid., at 7.
- 23 Supra, note 20.
- 24 Cook, K. and Sands, P. (2012). "Analytical Document on some of the Key Aspects Involved in Deciding to Bring the Legally Binding Agreement on Forests in Europe under the United Nations Umbrella", (Annex 5, Document 5/INC3), at http://foris.fao.org/static/forestnegotiations/Annex5_DOC5_INC3_EN.pdf; and Martin, M. and Prins, K. "Issues Arising from Paragraph 19 of the Report of the Second Session of the INC", (Annex 6, Document 5/INC3), at http://foris.fao.org/static/forestnegotiations/ANNEX_6_DOC5_INC3_EN.pdf.
- 25 Supra, note 2, Article 13.
- 26 Supra, note 17, at 7.
- 27 Ibid.
- 28 See http://www.unep.org/hazardoussubstances/MinamataConvention/tabid/106191/Default.aspx.
- 29 Supra, note 2, Article 12(6).
- 30 Ibid., Article 11.
- 31 Ibid., Article 15(2).
- 32 *Ibid.*, Article 15(5).
- 33 Ibid., Article 15(5)(j).
- 34 Supra, note 17, at 8.
- 35 Supra, note 2, Article 15(6).
- 36 Ibid., Article 12(6).



CCAMLR

Proposed Marine Protected Areas

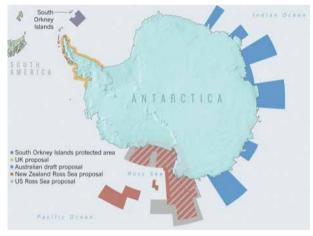
- Voted Down Again -

For more than a year, New Zealand, in company with the US, has sought a declaration by the Commission or the Conservation of Antarctic Marine Living Resource (CCAMLR) that would designate large expanse of the Ross Sea (see Figure 1) as a marine sanctuary. The proposal would have designated a total area in excess of 2. million km² for protection, which would have created the world's largest marine protected area (MPA) to da. Rejected in CCAMLR's annual meeting in 2012, the proposal was forwarded to a special meeting held in Bremerhaven, Germany this July, where a second MPA proposal (from Australia, France and the European Union) proposing less stringent protective measures for a cluster of seven MPAs in east Antarctica, covering about 1.63 million km², was also submitted.

In preparation for the Bremerhaven meeting, the proposals were broadly publicised. The Ross Sea proposal was described by its proponents as having been designed to "safeguard seals, penguins and fish in vast swathes of water through protected zones in the Ross Sea and eastern Antarctica [and] also create special research zones for scientists to monitor the impact of increased human activity and climate change on this isolated region". Ultimately, both the proposed protections are, in essence, fishing restrictions. Although relatively strict, however, both proposals would have allowed fishing for Patagonian toothfish (marketed as Chilean sea bass) – an activity that has been highly controversial, when considered in other environmental forums.

When first presented to CCAMLR, a body that must make its decisions by consensus, the Ross Sea proposal was not approved. Reports indicated that a number of countries, Including Russia and China, were uncomfortable with the extent of the fishing restrictions. Nonetheless, during preparations for Bremerhaven, Andrea Kavanagh, director of the Southern Ocean Sanctuaries campaign run by the Pew Charitable Trusts (a non-governmental organisation based in Washington DC and Philadelphia), was quoted as expecting approval: "I'm feeling really good about the proposals this time round. The science is settled. There is international will to do this".

Figure 1. Polar projection: Antarctic MPA proposals



Courtesy: Phys.org

In the Bremerhaven meeting, however, the proposals did not fare as well as it was hoped. Russia, backed by Ukraine, continued to oppose the action. Although presumably concerned about fishing, the Russian/Ukrainian opposition to the MPA proposals was couched in legal

questions, asking whether CCAMLR had the authority to create sanctuaries of this type. This was a legal issue that the Parties and Secretariat had not come prepared to address.

Other topics that the proponents had expected to discuss were reportedly not raised, presumably because those discussions would be premature in light of the authorisation question. One of the most important of these is the duration of the protections. In the original Ross Sea proposal, there was a provision for reconsideration of the MPA in 2064, but no indication that the protections would expire if not reauthorised on that date. The possibility of such expiration, requiring the Parties to once again come to a consensus if they wish to retain the protections, has arisen in other discussions of MPAs, in part for political reasons and in part because the concept of designating MPAs beyond national jurisdiction is heretofore untried, and, according to experts who have created marine and other protected areas in other locations, involves many challenges that appear insoluble on the basis of current capabilities. While most experts have confidence that solutions can be found, they agree that it is impossible to create a suitably concrete international document that is at the same time sufficiently flexible to enable the sort of action and adjustment that will be needed to enable effective operation of an MPA in international waters. Hence, the need for some type of review (at least) is generally recognised, although many proponents are strongly focused on ensuring that such review embodies only the "tweaking" requisite to supporting MPA management, and does not require reauthorisation by vote of the Parties. In international parlance, a protection that only exists for a period of years would not be considered a "protected area", although that prejudice may change if the use of such provisions were to become commonplace.

Following the disappointing result of the July session, CCAMLR announced that the proposals could be discussed again in the Commission's annual meeting in Hobart, Australia, this October. (TRY)

Notes

1 Cressey, D. 2013. "Bid to protect Antarctic waters gets second chance: Proposals for two huge marine reserves back on the agenda at major international meeting". *Nature*, 8 July 2013; available at http://links.ealert.nature.com/ctt?kn=4 &ms=NDIwMDgzMzAS1&r=MTc2NjIwNDEwOQS2&b=0&j=MTk0MTc4Mz k4S0&mt=1&rt=0.



Sub-Saharan Africa

Catalysing biofuel Sustainability

- International and National Policy Interventions -

by Alexandros Gasparatos,* Lisa Lee,* Graham P. von Maltitz,* Manu V. Mathai,* Jose A. Puppim de Liveira,* Francis X. Johnson* and Katherine J. Willis*

Biofuels are liquid and gaseous fuels produced from the chemical and biological processing of biomass. Depending on the raw material (feedstock) and the conversion technology used, biofuels can be divided into three categories: first generation (from sugar and starch crops, and animal/plant fats and oils), second generation (mainly from lignocellulosic matter) and third generation (from algae). First-generation liquid biofuels for transport, such as bioethanol and biodiesel, which are by far the most widely produced and hotly debated biofuels, are the focus of this paper. A rich literature produced in the past decade shows that different biofuel options can have significantly different environmental and socio-economic impacts. However, national biofuel policies usually seek to boost biofuel demand rather than enhance biofuel sustainability. This paper starts by identifying the main policy drivers behind biofuel production, and the peripheral role of biofuel sustainability in current policies. We focus particularly on the successes and future challenges of the Convention on Biological Diversity (CBD) in promoting sustainable biofuel production and use. Finally, using Sub-Saharan Africa (SSA) as an example, we show how the concept of "ecosystem services" can be of use in the better understanding of biofuel-related trade-offs and can provide the basis for assessment tools that can quantify such trade-offs in a policy-relevant manner.

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Policy Drivers of Biofuel Production and Use

Global biofuel production for transport purposes has increased more than five-fold in the past decade. The Organisation for Economic Co-operation and Development (OECD) predicts that, if appropriate steps were taken, by

2050 biofuels could constitute up to a quarter of transport fuel globally.² Although considerable current efforts seek to promote greater production and use of second- and third-generation biofuels, first-generation biofuels³ will be the main driver of global biofuel expansion in the shortto-medium term, particularly in developing countries.⁴ In this connection it is notable that, while there are significant research efforts in the US and the EU towards the development of second- and third-generation biofuels, Brazil and China are the only emerging economies planning to produce second-generation biofuels in the short term.⁵ This has been largely due to the fact that first-generation biofuels can be developed from readily available (and mostly proven) feedstocks and well developed and costefficient conversion technologies, making their production in developing countries easy.6

To understand the sustainability impacts of biofuels, it is important to note that biofuels have been pursued in different parts of the world for different reasons. While biofuels have been touted as a climate change mitigation strategy, in fact the EU is the only major biofuel producer/ user that has adopted biofuels in the first instance partly for this purpose. In most other countries, biofuels have been mainly pursued as a means of energy security and economic/rural development (Table 1).

biofuel expansion in the region. This paper discusses some key policy interventions at the international and the national level that can promote biofuel sustainability in SSA.

Sugarcane and jatropha are the two biofuel feedstocks that have received the most attention in SSA. National governments and foreign investors have started implementing biofuel/feedstock production for both domestic blending and exports. Where available, commonly articulated narratives for biofuel policies in SSA centre on energy security, rural development and carbon finance. Sugarcane ethanol offers significant advantages as it adopts a proven commercial model. However, it requires much higher levels of up-front financing and cannot address the fact that there is greater demand for diesel over gasoline in SSA. On the other hand, jatropha has been seen as a biofuel option that can offer some direct benefits to small subsistence farmers. This is in contrast to sugarcane, which is essentially an industrial crop, benefiting from largescale production and economies of scale. Despite several high-profile collapses of jatropha projects in Tanzania, Mozambique and 2 mbia, there still remains interest in jatropha in a number of SSA countries.

Current's a number of countries such as Malawi, Mauritin's Mi zambique and Tanzania have been debating and/or updating their biofuel strategies alongside

Table 1. Drivers of biofuel production and use

	Main feedstocks	Energy security	Economic and rural development	Climate change mitigation
$\mathbf{US}^{7.8}$	Maize (main) Soy beans (secon 'ry)	$\sqrt{}$		-
Brazil ^{9,10}	Sugarcane/molasses (main) Soy beans (se ondary)	$\sqrt{}$	$\sqrt{}$	-
EU ^{11,12}	Rapeseed (secondary)	$\sqrt{}$	$\sqrt{}$	\checkmark
China ^{13,14}	Low-quality maize (main) Sweet sorghum, sweet potato, cassava (secondary)	$\sqrt{}$	$\sqrt{}$	-
India ^{15,16}	Sugarcane molasses (main) Jatropha (secondary)	$\sqrt{}$	$\sqrt{}$	-
Indonesia ^{17,18}	Palm oil (main) Jatropha (secondary)	√		-
Malaysia ^{19,20}	Palm oil (main)	-		
Sub-Saharan Africa ^{21,22}	Jatropha, sugarcane (main) Cassava, palm oil (secondary)			-

Sustainable Biofuel Expansion in Africa: Why Does it Matter?

Sub-Saharan Africa has been identified as a potentially important area into which to expand biofuel/feedstock production. In contrast to the other major biofuel-producing regions, SSA has an unusually stark combination of poverty, food insecurity and ecosystem degradation. It is imperative to consider these issues with respect to future

related policies in the energy and agricultural sectors. Some countries, such as Ethiopia, have relied heavily on ambitious State-sponsored investment/expansion plans, whereas others have encouraged private-sector investment.^{23,24} For the private sector, there is a tendency to move away from less proven crops (*e.g.*, jatropha) towards more proven commercial energy crops, particularly

sugarcane and secondarily palm oil. Sugarcane ethanol investments in Mozambique, Sierra Leone and Tanzania aim to take advantage of favourable agricultural conditions and new avenues of market access. In Eastern and Western Africa, there has been some interest in palm oil as a commercial energy crop, thus potentially expanding beyond its traditional roles – as food, and as an ingredient in soap and local pharmaceutical products. Jatropha and other crops nevertheless retain some interest due to the tremendous variation in physical and socio-economic conditions across the continent and more generally due to the site-specific nature of bioenergy feedstocks.

National Biofuel Policies: Securing Demand over Promoting Sustainability

As transport has been the main end-use of biofuel by far,25 most biofuel policies have aimed to boost biofuel uptake by the transport sector. Key legislative instruments have been those that promote the mandatory blending of biofuels in transport fuel, also known as biofuel mandates. Such policies either set a specific biofuel production target, e.g., 136 billion litres of renewable fuel to be blended annually with transport fuel by 2022 in the US, or require biofuels to constitute a specified proportion of national transport fuel use, e.g., 10 percent of transport fuel by 2020 in the EU. Under favourable conditions, biofuel mandates can be taken up very rapidly. For example, in Brazil, the initial legal biodiesel blending requirement was two percent. This gradually increased to five percent in January 2010, with the final blending target of 11. 97 percent being achieved three years earlier than the 1905 deadline prescribed in law.²⁶

Biofuel mandates are often complemented w. han array of policies that stimulate and protect national feedstock/biofuel production. Such policies can redude, among others, tax breaks to facilitate uptake consumers, price guarantees/subsidies to stimulate domestic production, and import tariffs to protect national feedstock production from imports.²⁷ For example, the Brazilian Ministry of Agrarian Development established the Social Seal, which gives fiscal incentives and priority in biofuel auctions to biofuel companies that involve smallholders.²⁸

Several countries in SSA have mandated biofuel blending in differing proportions, 29 e.g., Angola (10 percent ethanol), Ethiopia (5 percent ethanol), Malawi (10 percent ethanol), Mozambique (10 percent ethanol increasing to 20 percent in 2021), Sudan (5 percent ethanol), Zambia (10 percent ethanol, 5 percent biodiesel), and Zimbabwe (5 percent ethanol increasing to 15 percent). Other SSA countries such as South Africa, Nigeria and Uganda have not put actual mandates in place, but have articulated specific biofuel production targets. Such mandates essentially ensure some minimum biofuel demand and are a means of reducing the financial risks to biofuel producers. Biofuel mandates are deemed necessary due to the monopoly position of fossil fuels and the dependence caused by the existing fossil-fuel infrastructure. However, biofuel mandates do not necessarily address the social and environmental impacts of biofuel production and use. Such

impacts can be positive or negative depending on the local and national context. Even though in some countries, such as China, India and South Africa, laws and policies provide clear clauses to avoid biofuel pathways that directly³⁰ affect food security, most national biofuel policies largely disregard the environmental and socio-economic impacts of biofuels.³¹

Up to now, the main avenue for improving the sustainability of biofuel projects has been setting voluntary certification standards. Such standards are developed by multi-stakeholder alliances and target either biofuels (e.g., the Roundtable on Sustainable Biofuels³² and the Global Bioenergy Partnership),³³ or specific feedstocks (e.g., Bonsucro³⁴(for sugarcane) and the Roundtable on Sustainable Palm Oil). 35 Usually, such standards encompass a wide range of economic, environmental and social criteria that have to be met if a biofuel or a feedstock is to be considered sustainable. Even though some legislative instruments, such as the EU Directive on the promotion of the use of energy from renewable sources (Directive 2009/28/EC req ire the certification of biofuels used within the W, this is not the case for all countries that produce c co sume biofuels.36

The Success and Failure of the CBD in Promoting Biofuel Sustainability

The CBD is the only multilateral environmental agreement that has explicitly included biofuels and their impacts in its agenda. The biofuel agenda in the CBD was largely driven by the perceived potential positive impact that biofuels could have on rural livelihoods, contrasted against the potential toll they could take on ecosystems and biodiversity.

The first CBD biofuel decision was adopted during the ninth Conference of the Parties to the CBD (CoP-9).³⁷ This decision acknowledges that biofuels can have positive or negative environmental and socio-economic impacts, depending on the context. It urges both parties and non-parties to boost research efforts to understand these impacts and to share their experiences on the development and application of tools that could assess such impacts considering the full life cycle of the biofuel. This was a landmark decision, when one realises that other biofuel-related policies in effect at that point – in the US, the EU and Brazil – largely disregarded the impacts of biofuels and their potential trade-offs.

In the two years following CoP-9, and during the intense debate about biofuels that erupted in the policy and academic communities in the last part of the first decade of this century, the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) developed draft recommendations on how to move forward with the assessment of these impacts. For example, a strong recommendation was made at the 14th Meeting of the SBSTTA (Nairobi, May 2010) that the CBD actively promote the establishment of a knowledge base on biofuel impacts and develop a toolkit for the assessment of direct and indirect biofuel impacts on biodiversity loss, livelihoods, food security and energy security.³⁸ During the

10th Conference of the Parties (CoP-10, Nagoya, 2010), this option gathered strong support from the African Group, Switzerland and the Arab countries among others. Strong opposition, mainly from Brazil, Japan and the Pacific Islands, however, led to the eventual omission of the toolkit and other amendments so that a less prescriptive version of the SBSTTA recommendation was eventually adopted. In particular, the final wording proposes the use of "voluntary conceptual frameworks for ways and means to promote the positive and minimize or avoid the negative impacts of biofuel production and use".

This trend (acknowledging the importance of biofuel impacts but not adopting concrete ways forward for their assessment) continued in CoP-11 (Hyderabad, 2012), which considered recommendations from SBSTTA-16. Those recommendations were the basis of heavy negotiations prior to CoP-11 and were accepted in the negotiated form during CoP-11.⁴¹ Some issues regarding gaps and uncertainties in scientific knowledge, tools and approaches were noted but no significant steps were made to address them.⁴²

The authors believe that, if SBSTTA-14's toolkit recommendation had been adopted by CoP-10, that action would have been a landmark decision – a clear acknowledgement of the importance of concretely assessing biofuel impacts – that could then have been transposed to national legislations. In failing to promote the need for biofuel impact assessment and the development of a common toolkit to assess biofuel impacts, the CBD missed a significant opportunity in the quest for biofuel sustainability.

Understanding Biofuel Trade-off. What Can the Ecosystem Services Framework Offer?

Assessment tools that can quantity infuel-induced changes of ecosystem services flows⁴³ at the landscape level have been shown to be ideal for assessing biofuel tradeoffs, 44 as they (a) capture the main environmental and socioeconomic impacts associated with biofuel production/ use, (b) employ a problem-oriented approach, (c) have an interdisciplinary focus integrating findings from various academic disciplines, and (d) have broad acceptance amongst academics, practitioners and policy makers. The fact that such tools can link biofuel-mediated ecosystem change with human wellbeing renders their application particularly pertinent in developing-country contexts as it is well accepted that poor people in least developed countries rely significantly on ecosystem services for their livelihoods. 45 Finally, ecosystem services tools resonate well with the focus of the CBD on ecosystem change and human wellbeing.

The authors of this article conducted, and released during CBD CoP-11, a comprehensive review of the literature about biofuel impacts in SSA.⁴⁶ This study found that biofuel production and use can affect rural development, energy security, food security, social conflicts, public health, air pollution, greenhouse gas emissions, soil erosion and biodiversity loss among others.

Most of these impacts are context-specific, and depend on the feedstock, the mode of production and the local environmental and socio-economic context, among others.

The study also found, however, that the impacts on human wellbeing of biofuel projects are largely related to the alteration of ecosystem services flows from biofuel landscapes. In particular, the conversion of agricultural land or natural ecosystems to biofuel landscapes can displace, divert and/or degrade a number of ecosystem services upon which local communities depend for their livelihoods.⁴⁷

Based on this work, we identified a number of policy priority areas that must be targeted in order to enhance the economic viability and the sustainability of the biofuel sector in SSA. Some of these priority areas are discussed below.

Policy Priorities for a Sustainable Biofuel Sector in Sub-Saharan Africa

Firstly, the choice of the most appropriate biofuel pathway in each frican country needs to be well informed an reflect broader national policy priorities. Our research shows that currently no single feedstock (i.e., jatropha or sugarcane) or mode of feedstock production (i.e., large plantations or smallholder schemes) can mee simultaneously all four of the main policy goals associated with biofuel expansion in SSA, i.e., national economic development from the agricultural sector, rural development/poverty alleviation, foreign exchange savings and energy security. Thus, when national energy security or economic development from the agricultural sector are the main policy drivers of biofuel expansion, then large-scale production using proven feedstocks, such as sugarcane, is most appropriate. On the other hand, if rural development/ local poverty alleviation or local energy security are deemed as important, then modes of production involving smallholders might end up offering the most advantages. The portfolio of feedstocks, modes of production, and institutions that regulate the biofuel sector must therefore be carefully designed on the basis of policy goals that recognise the constraints and opportunities presented by the economic and environmental realities of each SSA country.

The biofuel sector involves potentially valuable benefits for smallholders, but only if biofuel production chains are organised in ways that respect such holders' rights to land, water and other resources. Considering that a significant fraction of the land usually targeted for feedstock production in SSA is under customary management, appropriate land-tenure mechanisms need to be put in place. Such mechanisms must ensure that smallholders will not lose access to their land during (and after) the biofuel investment, or that they are adequately compensated for their labour and land investment. Actually, such land-tenure mechanisms are largely lacking in SSA and must be strengthened in order to prevent land grabbing by large-scale forestry and agro-industrial investments, which can include, but are certainly not limited to, biofuels.

Our study also found that feedstock yields affect the economic viability and as a consequence the social performance of biofuel projects. Several of the early jatropha ventures collapsed when the obtained yields were much lower than initially expected, rendering these early jatropha investments economically unviable. Such project collapses left local communities worse off in many cases. Maximising feedstock yields would require clear policy prescriptions to promote, in the short term, feedstocks that are proven and have dependable yields (e.g., sugarcane) over feedstocks with uncertain potential (e.g., jatropha). With regard to the medium-to-long-term development, there should be efforts to develop national innovation systems that can maximise feedstock production and conversion efficiency. Such efforts can be facilitated with bilateral cooperation with countries such as Brazil that have achieved technical excellence in biofuel production.⁴⁸ For example, through its "ethanol diplomacy", Brazil is exporting know-how about sugarcane ethanol production. This can provide an excellent opportunity to boost sugarcane ethanol production in SSA.

The existence of feedstock, biofuel and biofuel coproduct⁴⁹ markets is important for the viability of biofuel projects. Lack of such markets has been identified as an important contributor to the failure of biofuel projects. For example, there have been several instances of large producers and smallholders investing capital, land and labour in feedstock production, but eventually not finding any appropriate markets into which to channel their produce. There have been discussions on whether national markets alone could provide sufficient demand to increase the viability of the biofuel sector in SSA. Several voices suggest that regional biofuel markets could contribute nore to the development of vibrant biofuel sectors than a tice of markets in countries such as Mozambique and Tarne a.50 The rationale is that these countries have a railab. land to significantly expand feedstock productio but are constrained by the size of their transport feets - a constraint that basically limits the size of their intenced markets. On the other hand, some countries with a transport fleets such as South Africa cannot expand feedstock production due to land and environmental constraints. Such countries lack any strong incentive to make a shift to a cleaner fleet with flex-fuel vehicles that use ethanol, unless they can secure biofuel/feedstock from a dependable source. The establishment of regional markets that can facilitate biofuel/feedstock trade under mutually favourable terms could perhaps catalyse biofuel expansion and fleet renewal in the region as a whole. It should also be noted that in some cases alternative biofuel end-uses, such as biofuels for cooking stoves and lamps, might offer better human wellbeing outcomes and have environmental and social cobenefits, such as reduced deforestation and/or improvement in indoor air quality. This means that markets for such biofuel end-uses should be assessed and strengthened if deemed to be promising.

Lastly, it is important to include broader environmental and social considerations in biofuel policies in SSA. Key considerations include food security and ecosystem degradation, both of which can take a toll on the sustainable flow of services that benefit poor local communities. Regarding food security, while it is well accepted that jatropha and sugarcane production can compete directly

and indirectly with food production, it is not always a straightforward analysis to determine how they affect local food security. Africa is relatively unique in that poverty and a lack of agricultural inputs are key limitations on food security, whilst land is in relative abundance. Even though there have been instances of agricultural land being converted to jatropha and sugarcane in SSA, the resulting impact on food security can be positive or negative depending on other variables. For example, biofuel-driven improvement in food security could result from higher incomes or higher achieved yields due to better access to fertilisers, pesticides, irrigation and knowledge. Regarding ecosystem degradation, our research has shown the important links between biofuel-induced ecosystem change and human wellbeing.

Way Forward

The question of whether biofuels are overall good or bad for Africa is still incompletely answered. There is a significant variation in the environmental and socioeconomic macts of biofuels. Often it appears that the nature and integrated of these impacts are site-specific, making it quite difficult to generalise across studies. Furthermore, there is an emerging irony. While most poor homebolds in SSA rely on bioenergy (e.g., fuelwood, charcoal), the poor – often the feedstock growers – seldom receive this fuel.

Although significant progress has been achieved in the past decade in unravelling the main impacts of biofuel production and use, it is now time to take more concrete actions toward acknowledging the trade-offs involved in designing and implementing biofuel policies and eventually avoiding (or at least minimising) the negative impacts. We believe that the CBD can catalyse such efforts at the international level, with decisions consequently being transposed into domestic law.

In particular, issues about biofuel impacts on ecosystems and food security resonate quite well with the mandate of the CBD. Even though there have been efforts to exclude biofuel-related social impacts from the CBD process with the argument that they fall outside the remit of the Convention, we believe that, as a first step, these efforts should be rekindled, with the goal of developing a more holistic understanding of biofuel impacts. Our research suggests that biofuel-induced ecosystem change can inadvertently have negative impacts on human wellbeing, particularly in the developing countries of SSA.

As a second step, the CBD Parties could rekindle the discussions in the CBD agenda about the importance of tools and toolkits for biofuel impact assessment. The CBD's existing tools and methodologies, and the ecosystem services framework, could be key to the debate as they have a strong explanatory power when assessing biofuel trade-offs, particularly in developing-country contexts. Supplementing this understanding of biofuel trade-offs with robust economic analysis could yield valuable results in terms of establishing the most viable feedstock options and implementation modes in different SSA settings.

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La Plata Basin

The Regional Integration Processes

by Griselda Capaldo*

Etymology contributes a key piece of information about the roles played by transboundary river basins in human history. On the one hand, they are water networks that act as integration vectors among nations and can be seen as a natural geographical Internet that helps bring about commercial, social, cultural and geo-political exchange. From this perspective, they generate a space of cooperation and shared use of the environmental goods and services they produce. On the other hand, international rivers have also been a source of conflicts among river States. Etymology reveals this duality categorically: the word "river" comes from the Latin rivus and rivus gave place to rivalis, which originally meant "those who live on both sides of a waterway". The relationship between neighbours was not always peaceful, and the common interest of using the river was often the seed of repeated discords. As the number of conflicts increased, the original meaning of rivalis was lost and eventually the term came to mean "those who dispute over the use of water and navigation". It was this meaning that is captured in the *corpus juris* of Roman law but, with time, the term has come to tak on a wider sense, and is understood to mean "those win litigate" (Vidart, at 1). In turn, this new sense of the vord rivalis is the origin of the Spanish rivales (rivals). Toying lost the original meaning of *rivalis*, however, 'e need arose to find a new way to express the origin 1 tern. As a result, those who live on both sides of a waterw, y are not called rivales but are now described as bereños (coastal, riverside, riparian ones) (Capaldo, 2009, a. 255).

The general purpose of this paper. to explore and describe the role of transboundary basins as generators of spaces for cooperation. Its specific objectives include the following:

- to review how much the La Plata Basin has contributed to the regional integration process;
- to study what hydro-political circumstances helped to formalise the integration process; and
- to consider if such circumstances still exist and, if not, what factors would contribute to restoring the Basin's role in that process.

This interest in the La Plata Basin is grounded on four points: 1) it is, together with Amazonas and Orinoco, one of the three South American transboundary river basins; 2) it is the fifth largest river basin in the world (3.1 million km², equivalent in area to the combined coverage of Spain, Portugal, Italy, France, Belgium, the Netherlands, Austria and the former West Germany); 3) 45 percent of the Latin

American population lives within its area; and 4) it is addressed by more institutional regulations (regulatory treaties) than the Amazon and Orinoco basins.

History

In colonial times, the La Plata Basin was the natural waterway for the shipment of cargo coming and going between the Viceroyalty of Río de la Plata and the Kingdom of Spain, as well as between the Principality and Viceroyalty of Brazil and the Kingdom of Portugal.

From the late 19th century through most of the 20th century, nonetheless, the government of Brazil operated under a policy at erse to navigation on the river. It stopped using the I an lata Basin and transported freight by road to Brazil's own paritime ports (Pellizzetti, at 6). By the mid-1970s how ever, an important inland migration took place in Braz. encouraged by the central government through in entires granted to farm producers in the Southern provinces to settle in the "Chapadao do Parecis" region, located in Mato Grosso North, some 300 km north of Cáceres Port on the Alto Uruguay River. As a result, the central-west region, blessed by excellent weather and soil conditions, came to grow 50 percent of all soy production in Brazil (Cuniberti and Herrero, at 2; Giancola et al., at 98; Cardone et al., at 128; Covacevich, at 134). This output (OEA, at 136) had to be transported to Brazilian maritime ports by truck, resulting in freight costs of approximately US\$ 80 per ton for transport over 2,400 km. Port costs, when combined with these freight costs, cut the value of soy in half (Pellizzetti, at 7).

These high costs led to a search for an alternative and gave rebirth to the idea of transporting the soy cargo by river from Cáceres Port in Brazil down the Paraguay and Paraná Rivers in Paraguay and Argentina, respectively, to Nueva Palmira on the Uruguay River and from there across the ocean in vessels departing from De la Plata River. Although this was a round trip of 3,400 km, *i.e.*, 1,000 km more than the road route, a tug and barge convoy could charge a tenth of the cost of truck transportation (US\$ 8 per ton).

Brazilian President José Sarney (1985–1990) not only understood the concerns of producers in the region of Chapadao do Parecis and of the governors of Mato Grosso and Mato Grosso do Sul, but was also smart enough to appreciate the value of using the La Plata Basin and to promote the *Hidrovía Paraná-Paraguay* (the Paraná-Paraguay Waterway) project.

The La Plata Basin is regulated by a treaty dated 1969. Article 3 created a main steering body named *Comité Intergubernamental Coordinador* (CIC – Intergovernmental Coordinating Committee). One of the missions of the Committee is to implement the decisions

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unanimously adopted at the Meetings of the Foreign Affairs Ministers (Article 2, paragraph 3). In a 1987 meeting in Santa Cruz de la Sierra, Bolivia, the member States passed Resolution No. 210, whereby the development of the Paraguay-Paraná waterway would become a priority goal for the Parties. In 1988, the Ministers of Transportation and Public Works of the five riparian countries of La Plata Basin met in Campo Grande, Brazil, with the express purpose of convening the First International Meeting for the Development of *Hidrovía Paraguay-Paraná*. In 1989, in compliance with Resolution No. 238, the 19th meeting of Foreign Affairs Ministers from La Plata Basin took formal action to include the "Hidrovía Program" in the 1969 Treaty system.

Hypotheses and Assumptions

The foregoing brief historical overview presents the necessary bases underlying the author's working hypothesis, which focuses on the theoretical triangulation between water law, environmental law and integration law. A preliminary step in that triangulation is to show how water networks such as the La Plata Basin act as integration vectors among countries, and so contribute to the commercial, social, cultural and geo-political exchange.

This paper's key working hypothesis is that, in order to solve a cost-benefit problem related to soy exports, and to tip the commercial exchange scale in favour of Brazilian finances, thereby causing both GDP and *per capita* benefits to increase, President Sarney gave a significant role to the transboundary river network, which until then had not been used by Brazil, and designed a new integration strategy to facilitate bulk freight transportation.

Two secondary hypotheses result from the first. One of these relates to the need to create a geographic space for free circulation of goods and services, establishing a common tariff to avoid double or triple taxation on exports, and the adoption of a common tariff policy. This hypothesis is in line with the criterion supported by this paper in the



La Plata River Courtesy: Wikipedia

sense that certain hydro-political and macro-economic circumstances helped to formalise a regional integration process. The other secondary hypothesis has to do with the need to harmonise legislation in order to strengthen the integration process.

If the main hypothesis is correct, the proper primary strategy to carry it out was the development of the South American Common Market (*Mercado Común del Sur* – Mercosur) involving the La Plata Basin countries (Argentina, Brazil, Paraguay and Uruguay) and secondarily, to create and develop a river corridor named Hidrovía, complete with a Multimodal Transportation Agreement to provide an appropriate legal framework

for freight transportation from Cáceres Port in Brazil to the Atlantic Ocean at the mouth of the De la Plata River.

By signing the Treaty of Asunción in 1991, Mercosur was created. Thereafter, the Santa Cruz de la Sierra Agreement (1992) on River Transportation along the Paraguay-Paraná Waterway (including six additional protocols) and the Mercosur Multimodal Transportation Agreement, at the Seventh Meeting of the Common Market Council (Decision 15/94), together enabled the necessary legislative harmonisation.

The Santa Cruz de la Sierra Agreement became effective on 13 February, 1997. It is not directly applicable to river transportation. Its main purpose is the physical and

economic integration of the Parties, based on the adequacy of transportation and communication services to address the current requirements for regional development. It therefore fosters maximisation of regional and intra-regional commerce through harmonisation of policies applicable to river transportation (Capaldo, 2005, at 185).

The Hidrovía Agreement, executed in 1992, links the riparian nations and strengthens regional integration among Mercosur members, ensuring 24-hour use of the La Plata Basin as a navigation system. They would need to dredge 92 sections, 23 of which were considered critical in order to open a 2.5m–3m-deep channel for the transit of barge convoys up to 60 m in length, 24 hours a day, 365 days a year, between Corumbá, in Mato Grosso do Sul, Brazil, Canal Tamengo in Bolivia and Santa Fe in Argentina. Moreover, they expected to move 86.6 million m³ of mud, construct 32 dykes, and cross 650 km of Mato Grosso marshland (*Gran Pantanal*). These latter activities were the incubators from which the first criticisms and concerns from ecology advocates were born.

The change of administration in Brazil resulted in a different strategy. President Fernando Collor de Melo (1990–1992) was more receptive to environmental claims and inclined to abandon the Hidrovía Project mainly because of delays in implementation. This is how the proposal of extending Brazilian railways to link the maritime ports of Santos and Chapadao de Parecis was born. The Hidrovía project was no longer a priority when two railways, Ferronorte and Novoeste, offered new alternatives for bulk freight transportation. It is 1,780 km. to the Atlantic Ocean by railway, i.e., 1,400 km less an the Hidrovía route. Moreover, Ferronorte and Noveste were able to transport products from the central region to the Atlantic ports at competitive prices and ithout the environmental cost that implementation of the Hidrovía project would have generated.

This new scenario confirms, in the othor's opinion, the assumption that the lack of political will to put Mercosur into operation and to effectuate the Multimodal Transportation Agreement among its member States, results from Brazil's loss of interest in trading inside and outside Mercosur through the La Plata Basin (Hidrovía project).

However, from the perspective of a new theoretical triangulation between international environmental law and water law, it is appropriate to consider whether it might

Table 1. Analytical Methodology

State	Argentina	Bolivia	Brazil	Paraguay	Uruguay	State
Legal						Legal
institution						rule
	☆	☆	☆			Rule A
Institution a		☆				Rule X
			☆			Rule Y
		☆	☆	☆	☆	Rule A
Institution b			☆			Rule B
		☆		☆	☆	Rule Z
	☆		☆	☆	☆	Rule N1
Institution n	☆			☆	☆	Rule N2
	⋨		☆		☆	Rule N3

be possible, upon the basis of converging hydro-politics among Mercosur countries, to retain the geo-strategic view of La Plata Basin and from this approach to leverage the process of regional integration.

Seen from this particular perspective, conditions are optimum (and this relates to the third specific purpose of this paper), as riparian nations of the La Plata Basin can be shown – through common law practices, as well as internal and international law rules – to have consolidated a regulatory body that is sound and consistent enough to give shape to a *corpus juris aquarum ambientalis* applicable to the multiple uses of the basin (including transportation) and the sustainable management of water.

The Corpus Juris Aquarum Ambientalis and Regional Integration

The assumption that, among the member States of La Plata Basin, a *corpus juris* has been consolidated and is applicable to the multiple uses of the basin, as well as its sustainable management, is proved by a comparative analysis of:

- all env. primental clauses contained in their respective const. the is;
- all higher legal rules relevant to the sustainable management of water enacted by any of the five riparian countries of the La Plata Basin; and
- all treaties, statements and international acts including references to river, water and environmental matters.

Tracing this information leads this analysis back to 1933, *i.e.*, 80 years ago. If the resulting information were to be entered in a table (format shown in Table 1, below) and distributed among as many concept fields as necessary (for the number of legal institutions or criteria), for all (or most of) the reviewed rules, the resulting graphic would show the consistency of the network of internal, constitutional and international rules. The validity of this paper's hypothesis about the existence of a *corpus juris aquarum ambientalis* applicable to the sustainable management of the La Plata Basin depends upon such consistency. For this analysis, 81 rules of varying importance were reviewed and analysed in this way.¹

From this multi-layer comparative review, it became clear that there is a series of principles, objectives, rights, duties and actions which, because of their reiteration and uniformity across the range of jurisdictions, combine to create a true *corpus*. A second conclusion is that such is the

level of juridical consistency over 80 years of common history, that there is no doubt about the solidity of this *corpus juris aquarum ambientalis*, as common law, with a binding nature, and a central core composed of 22 principles, duties, rights and objectives, to wit:

- Preservation, protection and conservation of water and natural resources;
- A right to social participation in environmental management

processes;

- A right to environmental information;
- A right to environmental education;
- Rational, fair use of water and natural resources;
- A right to sustainable development;
- The principle of inter-generational stewardship;
- A duty of minimising, controlling and preventing contamination of water and the environment;
- A duty of restoring damages caused to the environment and to water resources;
- Environmental planning and order;
- Responsibility for damages caused to the environment;
- A duty to apply unified management criteria to water basins:
- Cooperation and good neighbourly practices among riparian countries;
- Exchange of data and information among riparian countries;
- A duty of communicating and making inquiries prior to any plan, work or action concerning the use of international water courses;
- A duty to maintain river navigability;
- The principle of free navigation on international rivers;
- The responsibility of the States for all damage or threat to the environment attributable to their own activities or the activities of physical or legal persons settled in their territories;
- A duty to avoid significant transboundary damage;
- Acceptance of the ecosystem approach;
- A preference for peaceful solution of controversies; and
- A duty of observing and reinforcing all environmental treaties where riparian countries are parties.

The third conclusion is that this *corpus*, because of its uniformity and the nature of the regulatory sources behind it, is an excellent platform for cooperation as ong riparian countries and the shared use of the environmental goods and services they provide. Given that at least 30 rules of international environmental law and water law are common not only to the five riparian countries in the La Plata Basin, but to all South American nations, this *corpus juris* could in principle be applicable *mutatis mutandi* to all basins on the continent, including the Amazon and Orinoco basins.

To confirm this latter point, a review would be required of the constitutional rules and internal legislation of each one of the other eight South American nations. If this assumption is correct, however, then it would appear that the goals of the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA)² are quite feasible. So far, IIRSA is a dialogue forum intended to encourage the development of transportation, energy and communication infrastructure among the countries of the region with a view to strengthening their physical integration as well as a sustainable and fair territorial development model. The Initiative was created 13 years ago at the 2000 meeting of South American Presidents in Brasilia. One of IIRSA's components is FONPLATA, the Financial Fund for the Development of the La Plata Basin and Hidrovia.

The first IIRSA driver is Brazil, which is quite open about its purpose to generate an outlet to the Pacific Ocean. Understandably, out of Brazil's 10 articulation corridors,³ eight are horizontal and only two (including the Hidrovía) are vertical. Brazil is also one of the promoters of UNASUR (Union of South American Nations), created on 8 December, 2004 at a meeting of the Presidents or representatives of 12 South American nations in Cuzco, Peru. Again, the geopolitical strategy seems to be equally reiterated, encouraging the development of transportation infrastructure (including river transportation) to be later institutionalised through a regional integration process.

Conclusion

In the author's opinion, the Hidrovía/Mercosur Project is mirrored by the IIRSA/UNASUR Project. In both cases, rivers are considered as the axes of integration and cooperation processes. Looking at Mercosur again, the assumptions and evidences in this document lead us to state that the singular regulatory convergence described above provides an excellent platform and contributes a remarkably uniform theoretical-juridical framework which the author or his paper names corpus juris aquarum ambientalis. This framework is entirely suitable as a basis for developing common policy to facilitate integrated regional action that will be sustained over time and focused on the sustainable management of the multiple uses of transboundary water basins and the prevention of contamination of those watercourses.

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Notes

- 1 Reviewed instruments included 16 binding rules of international environmental law (agreements and protocols to which the five riparian countries of the Basin are parties), as well as nine international law rules specifically applicable to La Plata Basin, 13 international (soft-law) rules, five Constitutions, 10 Argentinean laws, 11 Brazilian laws, six Bolivian laws, five Paraguavan laws and six Uruguavan laws.
- 2 IIRSA brings together 12 out of the 13 South American nations. French Guiana is not included in the project.
- 3 Other axes include Andean, South Andean, Capricorn, Amazon, the Guiana Shield (Suriname or Dutch Guiana, and Guyana or British Guiana), Southern, Central Inter-ocean, Mercosur-Chile and Peru-Brazil-Bolivia.

NATIONAL AFFAIRS

Japan

Fukushima Disaster and Reform

by Jotaro Yokoyama*

The 2011 Tohoku Earthquake and Tsunami and the resulting disaster at the Fukushima Daiichi Nuclear Plant¹ ("Tohoku Disaster") killed nearly 16,000 people² and devastated the Tohoku area. It has also engendered international issues such as the polluted water discharged from the plant and the debris reaching US and Canadian shores. Two years after the Tohoku Disaster, it is a common understanding among Japanese people that the disaster was more man-made than natural.³ On 27 June 2012, the Japanese Diet (national legislative body) promulgated a law (Genshiryoku Kisei Iinkai Settchi Hou (Law to Establish Nuclear Regulation Authority), Law No. 47 of 2012) to establish a new agency to regulate the nuclear power industry. This effort is referred to in this article as the "2012 Reform". It was based on the understanding that the current bureaucracy had failed and was under the control of various interests and rights accruing in the so-called nuclear power community (genshirhoku mura). 4 This paper will present detailed analysis of the current state of this dysfunction and a specific examination of proposed solutions, particularly focusing on the amendment of Japan's Envire mental Impact Assessment Law ("EIA Law").5 In this process, the National Environmental Policy Act (NEPA) of the United States will be referred to from time to the hereinafter.

Overview of the Dysfunctional Regulation and Public Scrutiny of Nuclear Power in Japan

Former Framework for Regulation and Public Scrutiny

NISA and NSC

Before the 2012 Reform, the installation of a nuclear reactor required approval from the Japan Ministry of Economy, Trade and Industry (*Keizai Sangyou Shou*) (METI).⁷ The Agency for Natural Resources and Energy (*Shigen Energy Cho*),⁸ incorporating the Nuclear and Industrial Safety Agency (*Genshiryoku Anzen Hoan In*) (NISA)⁹ as its external bureau (*gaikyoku*), was established under METI, and was in charge of regulating the establishment and operation of nuclear reactors to ensure the safety thereof.¹⁰ NISA officials were appointed by the head of NISA,¹¹ who in turn was appointed by the head of the Agency for Natural Resources and Energy,¹² who in turn was appointed by the Minister of the METI.¹³

Upon granting a permit for the installation of a nuclear reactor as set forth above, the Minister of the METI

 * Attorney-at-law qualified in Japan (Tokyo Bar Association) and lecturer, Yamanashi Gakuin University. had to obtain a formal opinion from the Nuclear Safety Commission (*Genshiryoku Anzen Iinkai*) (NSC),¹⁴ an agency established under the Cabinet Office.¹⁵ Members of the NSC were appointed by the Prime Minister of Japan.¹⁶ In this way, two independent organs – NISA and NSC – were in charge of regulating the establishment and operation of nuclear reactors. It was intended, although perfunctorily, that this "double-check" scheme would secure the safet, of the nuclear reactors more prudently than a single 'gran could.

Muni ipai. ies

Although the legal authority to grant a permit for the in tallation and operation of a nuclear reactor rested solely with METI, it was customary practice for the electric power company that sought to establish the nuclear reactor to execute, on a voluntary basis, a so-called nuclear safety agreement (genshiryoku anzen kyoutei) with the municipality near the site of the planned nuclear reactor. 17 A nuclear safety agreement typically contained provisions setting forth, *inter alia*, (i) the electric power company's obligation to obtain prior consent of the municipality for the installation or extension of a nuclear reactor; (ii) the electric power company's obligation to report to the municipality in case of an emergency; and (iii) the municipality's right to enter and investigate the plant. The electric power companies entered into nuclear safety agreements to improve public reliance¹⁸ or acceptance¹⁹ of nuclear reactors. In addition to these typical provisions, electric power companies also generally sought prior consent from the affected municipalities upon restarting a reactor after an unscheduled stoppage due to an accident or error (although the typical nuclear safety agreement does not require this).²⁰

After the Tohoku Disaster, even municipalities beyond the one in which a proposed reactor is to be located are increasingly requesting similar agreements *post facto*, out of concern that they could be similarly affected by potential accidents.²¹ Thus, for example, while the national government desires to restart the Ooi nuclear power plant in Fukui prefecture (where operations were suspended after the Tohoku Disaster), the governor of Kyoto, within the adjacent prefecture to Fukui, is strongly opposing the restart.²²

Environmental Impact Assessment

Installation of a nuclear power plant is subject to an environmental impact assessment as prescribed in the EIA

Law. Under this Law, an electric power company installing a nuclear power plant must prepare an environmental impact statement (EIS) which must include a summary of opinions expressed by citizens and the opinion of the relevant prefectural governor.²³ METI was thus required to investigate, based on such EIS, whether "proper consideration has been given to the protection of the environment".²⁴ Based on this investigation, METI could refuse to issue such a permit, or impose conditions to the issuance of such a permit.²⁵

Overview of the Dysfunction

In applying the regulatory scheme set forth above, the three main players (national government (NISA and the NSC); municipalities; citizens) have all failed to properly control the nuclear power industry. The common root cause of this dysfunction is the government's unfortunate custom of becoming dominated by business entities, even at the sacrifice of citizens' lives and health, and the destruction of the environment

As detailed below, the double-check scheme involving NISA and NSC has failed due to the strong influence of the "nuclear power community" (consisting of politicians, bureaucrats, and business entities) for the purpose of securing various interests and rights accruing from controlling the nuclear power industry. The power of municipalities has been sharply curtailed by the huge subsidies granted by the national government to the municipalities as a result of the strong influence of the nuclear power community. Moreover, citizens are powerless for the same reasons -i.e., because the E. Law is quite insufficient, reflecting the strong influence of business entities, principally in the following two points: (a) the EIA Law does not mandate a Strategic Fivin amental Assessment (SEA) which is critical especially for a nuclear reactor in Japan; and (b) there is no procedure available to remedy an electric power company's lature to include in an EIS any opinions expressed by citizens, in spite of the fact that public involvement is taken into account in the relevant approval processes. Jurisprudence in this area has not progressed to the point at which it could restrict and remedy the abuse of administrative discretion (e.g., METI's discretion to issue a permit), so there is no assurance that a licence or permit properly reflects the substance of an EIS.

The following discussion details and analyses each dysfunction and specifically examines the proposed solution.

Dysfunction of NISA, NSC and METI Structural Defect of Regulatory Authorities

As described above, personnel management for NISA rested with the Minister of METI (who appoints the head of the Agency for Natural Resources and Energy, who in turn appoints the head of NISA). As a result, the agency in charge of regulating the establishment and operation of nuclear reactors (NISA) is under the control of the Ministry which took the initiative in promoting nuclear power (METI). So NISA's dependence on METI was obviously contradictory to NISA's purpose of securing the safe operation of nuclear reactors. Such dependence

went against, for example, the standards promulgated by the International Atomic Energy Agency (IAEA), which mandated that "[t]he political system shall ensure clear and effective separation of responsibilities and duties between the regulatory body and organizations promoting or furthering the development of nuclear technologies". In Switzerland, for example, the Swiss Federal Nuclear Safety Inspectorate, the national regulatory body for nuclear safety, was established in 2009 as an independent body constituted under public law. Prior to this change, the Inspectorate's predecessor body was part of the Swiss Federal Office of Energy. 28

As a contrast with NISA, the NSC enjoyed greater independence from METI, because its members were appointed by the Prime Minister of Japan. NSC's role in the regulatory process was nominal, however. The permit for installation of a nuclear reactor was granted by the Minister of METI, who was not obligated to do anything more than to "hear an opinion of NSC". ²⁹ At this point, however, it appears that NSC failed too, because it was a part of the nuclear power contraction. Thus, both NISA and NSC failed in the regulatory and oversight roles.

Sympto us of Dysfunction NISA

be most explicit evidence of the dysfunction of NISA is the fact that it ignored a proposal, which was presented at a meeting of a working group within NISA in 2009,³⁰ to consider the possibility of an earthquake and tsunami of a Force much greater than the one the models used to evaluate the ability of Fukushima Daiichi and Daini Nuclear Power Plants to resist an earthquake. At this meeting, Yukinobu Okamura, a member of the working group, proposed that the Tokyo Electric Power Company ("Tepco") should take into account the Jogan Earthquake which struck Japan in 869 and the huge tsunami that resulted from this earthquake.³¹ Tepco and other members of the working group cut off this proposal without any clarification, simply stating that they would base their recommendations on the Shioyazakioki Earthquake which occurred in 1938 and was much smaller than the Jogan Earthquake.³²

There is also evidence that NISA acted as an interested promoter of nuclear power, rather than as an impartial regulator. In 2006, for example, NISA opposed the NSC's proposal to expand the size of the recommended nuclear hazard zone (the area within which there is danger of suffering harm after a nuclear reactor accident), on the grounds that such expansion would arouse anxiety among people regarding the safety of nuclear reactors.³³ On at least five occasions since 2005, NISA directed power companies to attend town hall meetings held by NISA and deliver favourable opinions regarding nuclear reactors.³⁴ This behaviour is also evidence of NISA's dysfunction, given that promotion of nuclear power is quite contrary to NISA's role under the legal framework.³⁵

METI

METI has been strongly biased in favour of power companies due to the practice of *amakudari* – former bureaucrats finding lucrative employment in power

companies and other firms and associations related to the power industry. According to a magazine article published by one of Japan's most respected newspaper publishing companies, at least 103 former bureaucrats have found employment in 56 companies and associations related to the power industry.³⁶

In one instance of *amakudari*, an association whose last four chief directors were all former METI bureaucrats received an exclusive government order under which it was required to make "payments" to people living near the nuclear reactors by giving them discounts on their electricity bills.³⁷ The association then "subcontracted" this operation to power companies.³⁸ In essence, the power companies discounted electricity charged to people living near the nuclear reactors, while the superfluous association received payments for its role in the operation – all at the expense of general taxpayers. This type of corrupt practice is just one illustration of how METI failed to properly regulate nuclear power.

NSC

The most explicit evidence of the dysfunction of NSC would be the fact that it asked Tepco to prepare a draft of a 1993 report regarding the safety of nuclear reactors in Japan, which was published in NSC's name. Specifically, NSC asked Tepco to draft the part of the report specifying which measures had been taken for dealing with the problem of station blackout (SBO).³⁹ Tepco's draft stated that "safety is guaranteed to a sufficient level because nuclear reactors in Japan are designed to have an extra margin of safety". Based on this, NSC's final draft on the report stated "the possibility of a serious situat. The tow even in case of SBO".⁴⁰ The NSC appears to have a fixed as a tool of the nuclear power community.

2012 Reform

In response to the growing public, "ricism regarding the dysfunction of NISA, NSC and METI, the Japanese Diet promulgated a law (the "2012 Law") on 27 June 2012 to establish a new regulatory agency (Nuclear Regulation Authority (NRA)) to replace NISA and NSC. NRA was launched three months later, on 19 September 2012.⁴¹

Based on the common understanding of the necessity for a single unified agency that is structurally independent from METI, the new agency is an "external bureau (gaikyoku) of the Ministry of the Environment", 42 tasked with unitarily performing the regulatory functions that were formerly divided between NISA and NSC, under the "double-check" scheme. It must be noted, however, that NRA is not an "external bureau of the Ministry of the Environment" in the true sense of the term. In fact, under the 2012 Law, members of NRA are appointed by the Prime Minister with the consent of the Diet. 43 This is an exception to the rule that a head of an external bureau (gaikyoku) is appointed by the Minister to whom such a bureau reports. 44

This diversion from normal practice came about as follows. Although the then-ruling Democratic Party (*Minshu-tou*) originally proposed that the new agency be established under the Ministry of the Environment, it later agreed to the basics of the counterproposal advanced by the

country's two other political parties, the *Jimin-tou* (Liberal Democratic Party) and the *Koumei-tou*, that the new agency should be established under the Cabinet Office. ⁴⁵ In addition, while the Democratic Party originally insisted that the Ministry of the Environment should be in charge of establishing the new structure for disaster prevention, such as disaster-prevention guidelines and a structure for measurement of radiation levels, ⁴⁶ it later agreed to the counterproposal by the *Jimin-tou* and *Koumei-tou*, that the new agency should be in charge of those roles.

The Democratic Party, eager to start a new regime in order to resume nuclear reactors justifiably, ⁴⁷ had no option but to agree to the proposals put forth by the then-non-governmental parties (which had a majority in the House of Councillors), because a bill needs to be approved by either the majority of both Houses or by a two-thirds affirmative vote of the House of Representatives of Japan. ⁴⁸ The two then-non-government parties apparently wanted to prevent the Ministry of the Environment from having regulatory power concerring nuclear energy, presumably because the two parties and in vested interest in the business of the Ministry of the Environment. ⁴⁹

This is is ative history is illustrative of the superficial status of the Ministry of the Environment. Thus, it would be hard to say that the 2012 Reform ensures "clear and effective separation of responsibilities and duties between the regulatory body and organizations promoting or furthering the development of nuclear technologies". 50

Dysfunction of Emasculated Municipalities

Nuclear safety agreements, described above, are ineffective for three reasons. Firstly, the power of municipalities where nuclear reactors are located has been sharply curtailed by municipal dependence on the huge subsidies granted by the national government. Under the relevant laws,⁵¹ the total subsidy per reactor granted in 45 years is 124 billion yen.⁵² This subsidy is typically appropriated for the construction of community utilities such as spa facilities, schools and town halls⁵³ and, as such, essentially purchases the cooperation of both the municipalities and local citizens.

Secondly, a nuclear reactor accident directly and physically affects not only the municipality where the reactor is located, but also neighbouring municipalities. For the Genkai Nuclear Plant in the town of Genkai, Saga prefecture, for example, Kyushu Electric Power Company has executed a nuclear safety agreement with Genkai,54 but not with the adjacent Karatsu City (whose central area is only 15 kilometres away from the Genkai Nuclear Plant). Genkai has a population of only 6,738,55 whereas Karatsu City has a population of 130,921⁵⁶ who could directly and physically be affected by an accident (although, of course, the amount of potential damage is not solely a function of population numbers). The fact that the Kyushu Electric Power Company refused to conclude a nuclear safety agreement with the Karatsu City authorities shows that "local consensus" is just an absurd pretext.⁵⁷

Thirdly, and most importantly, nuclear power plants affect the nation as a whole in many ways (such as the

potential danger and disposal costs caused by nuclear waste, compensation for damages resulting from an accident, and the costs of subsidies granted to municipalities where nuclear reactors are located). These problems cannot be cleared solely by obtaining consent from a few co-opted municipalities. Based on these three reasons, it appears that nuclear safety agreements are an ineffective mechanism.

More important than the involvement of municipalities, therefore, would be a scheme under which citizens nationwide could monitor and effectively block any unsafe operation of nuclear reactors. The EIA Law is critical for such a purpose, but is a far cry from ensuring such effective participation of citizens. The next sections provide a detailed analysis of the EIA Law and specifically examine the solution.



Fukushima's four damaged reactor buildings, photographed on 16 March 2011

Necessary Amendment to the Law and Progress of Jurisprudence Importance of Citizens' Participation

Whatever form the new regulatory regime might take, there is always a risk that such a regime may degenerate to dysfunctional formality through *amakudari* (described above) or some other regulatory dysfunction resulting from a desire to protect vested interests. The institution of a scheme whereby citizens can monitor and effectively block any unsafe operation of nuclear reactors is, therefore, of greater importance than the specific design of the regulatory regime.

Necessary Amendment to the EIA Law *Overview*

Although discussions regarding the enactment of an environmental assessment law began during the early 1970s, they were suspended due to the opposition raised by business entities, agencies in charge of development, and other affected parties. The EIA Law was finally enacted in 1999, thirty years after the US NEPA, making Japan the last of the OECD member nations to enact such legislation. The provisions of the EIA Law and the course of events leading to its enactment speak volumes on the

dominance of business entities in Japan over the imperative of environmental protection.

Specifically, the EIA Law is insufficient in the following two points: (i) it does not mandate the use of an SEA, an element that is critical with regard to the permitting of a nuclear reactor in Japan; and (ii) it does not include any procedure for remedy of any failure of an EIS to fully comply with its requirements (*e.g.* failure of an electric power company to include in an EIS any opinions expressed by citizens).

Strategic Environmental Assessment

The EIA Law: The SEA has come to be required in quite a few countries such as South Korea, China, Hong Kong and 25 out of 27 EU member countries.⁵⁹ Although

not specifically calling for an SEA in the US, NEPA requires, inter alia, that, as early as possible in the consideration of a new development, an EIS present alternatives to the proposed action (including the alternative of no action)60 and emphasises such alternatives as "the heart of the environmental impact statement".61 By contrast, the EIA Law requires no alternatives,62 but merely requires "measures for protecting the environment (including details related to how such measures were developed)".63 The EIA Law lacks any direct or indirect

Courtesy: Wikipedia requirement for the SEA or any assessment at the time of either

(i) comprehensive policy planning or (ii) decision on the location or size of a project.

Some commentators lament this deficiency, and level the criticism that the Tohoku Disaster particularly demonstrates the importance of SEA in the location decision. Indeed, the location assessment is an especially critical factor in the decision-making process for nuclear reactors in Japan because Japan is susceptible to natural disasters (such as earthquakes and tsunamis) due to its location on the circum-Pacific orogenic belt. In fact, several experts have made this exact point in recent opposition to the proposed restart of the Ooi nuclear power plant, 50 pointing out that the site is located right on top of an active fault. Whether or not there is truly an active fault beneath the Ooi nuclear power plant, it is obvious that conducting a location assessment is a critical factor in the decision-making process.

2007 Guideline: In 2007, Japan's Ministry of the Environment issued a set of guidelines entitled "Guidelines on the Introduction of the Strategic Environmental Assessment" ("Guideline"), which purported to promote the introduction of the SEA. Surprisingly, however, the Ministry of the Environment declared in the Guideline

that power plants are not obligated to conduct SEAs because "no conclusion had been reached with respect to the power plants". 68 This was quite contrary to the discussion at the Strategic Environmental Assessment Comprehensive Study Meeting that had been convened by the Ministry of the Environment to draw up the Guideline. As a result, the Guideline has been strongly criticised (even by a member of the Study Meeting, who described it as "non-transparent"). 69 This is one way in which the energy industry has been able to effectively derail the process of SEA for the consideration of alternative locations, and underscores the undue influence of the nuclear power community in these regulatory/safety matters.

2011 Amendment: In response to the criticism that the EIA Law should prescribe requirements for the SEA, the EIA Law was amended on 22 April, 2011⁷⁰ ("2011 Amendment"). The 2011 Amendment, however, did not require the consideration of alternatives in a true sense. The relevant part of the 2011 Amendment provides as follows: "A person seeking to implement a Class-1 Project⁷¹ shall, at the stage of making a plan of a Class-1 Project, upon determining an area in which to implement the project and other items designated by the ordinances [...] pursuant to the ordinances issued by responsible ministries and agencies in accordance with the types of project, investigate items to be considered in relation to the project to conserve the environment in one or more areas where the project is expected to be implemented". "

The "one or more areas..." language demonstrate that the 2011 Amendment does not require consider, io. of alternative locations and the location issue is the responsible must stries and agencies". Judging from the history of the Suideline as summarised above, however, such ordinances will not mandate consideration of alternative locations of power plants.

Indeed, at the meeting of the Kankyou-eikyou-hyoukahou ni Motozuku Kihonteki-jikou-nado ni kansuru Gijyutsu Kentou Iinnkai (Technical Investigation Committee related to Basic Items, etc., under the Environmental Impact Assessment Law) held by the Ministry of the Environment from June 2011 through March 2012 to investigate technical items that would be necessary upon the enforcement of the 2011 Amendment, it was concluded that "a reason must be clarified when an alternative location is not being considered". This means that no consideration of alternative locations is necessary if there is any "reason" to dispense with it.

It therefore appears that an assessment of location is not required by the EIA Law and will not be required by the 2011 Amendment. The EIA Law should be amended further to incorporate such a requirement.

Civil Action to Remedy Inadequate Environmental Assessment

Significance of Public Involvement: The EIA Law purports to secure the necessary environmental considerations by authorising the Minister of the Environment to offer an opinion, 74 which must be examined

by an issuer of a licence or other necessary approval.⁷⁵ The Ministry of the Environment does not, however, necessarily have the knowledge or the expertise to give an opinion on all proposed projects, which can vary in terms of business sector, substance and location. According to the *Kankyou Eikyo Shinsa Shitsu* (Environmental Impact Assessment Division) of the Ministry of the Environment, there are only five personnel in charge of such a review.^{76,77} To date, in these processes, the Minister of the Environment has not offered anything beyond a general opinion, that could be offered by any member of the public with no special knowledge or expertise.⁷⁸

In preparing an EIS, a project proponent does not usually have any incentive to include information that may discourage an issuer from granting a licence or other necessary approval. It is more advantageous to conceal such disadvantageous information. The difference is public involvement. Not only are the EIA Law's requirements in this respect insufficient, but severe obstacles stand in the way of substantialising such requirements through civil action, when it by administrative litigation (gyousei soshou) of by civil lawsuits (minji soshou).

Aa vinis rative Litigation: There are two major obstacles that impede a citizen from administrative litigation. First, a pointiff must have standing (genkoku tekikaku) to file a lawsuit seeking the revocation of, an injunction against, or any mandamus involving, any administrative action. The formulation adopted by the Supreme Court of Japan is that a plaintiff must have a statutorily protected interest, which shall be judged not only by the language of the law, but also by the purpose of the law and the content of interest. Apart from the entangled unreasonableness of this formulation, the Japanese court acknowledges standing more narrowly than US courts do. A useful point of illustration is the fact that the Supreme Court of Japan generally denies standing to general consumers. In starkest contrast to the US, 2 the Japanese court also denies standing to organisations.

To summarise, the court's position toward standing has been both entangled and circumscribed, thereby constraining public involvement. The Japan Federation of Bar Associations expressed its opinion in 2010 that the EIA Law should be amended to include a procedure that enables a citizen to bring a complaint or suit with respect to an environmental impact assessment. ⁸⁴ To date, however, the Ministry of the Environment has done no more than declare the need to examine this issue in the future. ⁸⁵

Second, for a plaintiff to prevail in a lawsuit to revoke an administrative action, such administrative action must be illegal. 86 In cases where a project proponent has conducted an improper environmental assessment (for example, by failing to incorporate a public comment into an EIS), 87 however, the agency plays a very limited and passive role under the EIA Law, so that it is unlikely that an administrative action could be used as a means to declare it illegal. By comparison, NEPA requires an agency to conduct an environmental assessment on its own, 88 whereas the EIA Law does not require this, but merely obliges an issuer of a licence or permit to review an EIS prepared by a project proponent. In Japan, an agency will not see itself

as obliged to consider any fact beyond or in contravention of a submitted EIS.

A licence or permit will therefore not be revoked even in a case where, for example, a project proponent has completely disregarded some significant public comment that, if properly addressed, might have led to suspension of the project. As a result, administrative litigation would be a difficult tool for the realisation of public involvement.

Civil Lawsuit: Deterred by the obstacles of administrative litigation, a plaintiff may choose instead to bring a civil suit against the project proponent. This approach, however, also presents a thorny path. For a plaintiff to prevail in a lawsuit seeking an injunction against a project, that project must infringe a right or legally protected interest belonging to the plaintiff beyond the maximum degree that is endurable. ⁸⁹ Japanese jurisprudence does not confer any right to prevent environmental destruction that does not involve any damage to a plaintiff's own life, health or property. This limitation drastically reduces the opportunities for bringing a civil suit against a project proponent.

Moreover, as noted above, local citizens are co-opted through their municipalities. It would not be realistic to expect them to bring a civil suit that would negatively impact their benefits accruing from the huge government subsidies. Coupled with this, even where a citizen is willing to take such action, it would be very difficult to prove that he or she has suffered the necessary damage to his or her own life, health or property simply from the existence of a nearby nuclear reactor.⁹⁰

Necessary Amendments: As described above, lesp, ethe significance of public involvement to rea for so ety and EIS processes, severe obstacles stand in the way of concretising such involvement in the relevant regulatory processes through administrative litigation or civil suit. Accordingly, the Law should be amended to provide for a procedure that enables citizens to effectively bring a complaint or lawsuit with respect to an environmental impact assessment.

Restricting and Remedying the Abuse of Administrative Discretion

Even where an environmental assessment is conducted properly, no assurance exists that an issuer of a licence or permit will properly consider the substance of an EIS and, where necessary, deny the requested licence or permit or attach conditions to such issuance, because the issuance of a licence or permit under Article 33 of the EIA Law qualifies under the law as an administrative discretionary disposition (gyousei-sairyou). This is reflected in two provisions from Article 33 of the EIA Law:

- (i) in reviewing an application for a licence or permit, the issuer thereof shall determine, based on an [EIS], whether proper consideration has been given to protecting the environment in the relevant project area;⁹¹ and
- (ii) when considering the results of the review regarding the protection of the environment, an issuer of a licence or permit may refuse to issue

such licence or permit, or may attach conditions to such a licence, etc. 92

The language "proper consideration" is too ambiguous, ⁹³ allowing any subordination of environmental protection to economic or other concerns to be justified in any case, on the pretext that it has been reached after "proper consideration". Similarly, the permissive "may" does not oblige but simply allows an agency to refuse or attach conditions to a licence.

Discretionary administrative dispositions can be deemed illegal and revoked only when made beyond the agency's discretionary power or through an abuse of such power. He is this context, Japanese jurisprudence is very unclear and arbitrary. Some court cases have revoked such a disposition on the grounds that it misconceived an important fact or ignored a fact that should have been considered, he but these revocations have not been systematic or consistent.

In particular the courts have failed to systematically take account of the pe of interest at issue (for example, life, health property) in demarcating the extent of administrat. e discretion allowed. In the Ikata Genpatsu case, 97 fc exa nple, the court allowed broad administrative discretion in granting a permit for the installation of a nucler reactor, on the grounds that it was a "synthetic judgment based on nuclear engineering and other manifold and extremely advanced scientific and technological expertise". The extent of administrative discretion is demarcated by the purpose of the law and the mandate of the Constitution, indicating that the courts should systematically take into account the constitutional value of the interest at issue. In the case of nuclear reactors, human lives, the most significant interests of all, are at issue, so administrative discretion should be at its most narrow. Jurisprudential progress in this respect⁹⁸ would also have the effect of encouraging citizens to offer opinions and otherwise monitor the installation or operation of nuclear reactors.

Conclusion

As discussed above, because of the actual and expected dysfunction of the national government (either NISA, NSC, NRA or others) and the municipalities in regulating the nuclear power industry, the critical input into nuclear regulatory permitting is citizens' participation. In this light, the EIA Law should be amended (i) to require an SEA or location assessment at a proper time, and (ii) to incorporate civil action and other mechanisms to remedy inadequate environmental assessment and to systematically take into account the type of interest at issue in demarcating the extent of administrative discretion allowed. These measures would ensure effective participation of citizens in monitoring and effectively blocking any unsafe installation or operation of nuclear reactors. It would, in effect, nurture the development of environmentally mature citizens (whether NGOs or local citizens) able to take an active part in the environmental assessment processes. Such measures are also the way to dissolve and block the nuclear power community's stranglehold on these vital processes.

Notes

- 1 The meltdown and hydrogen explosion of three reactors that occurred in the days following the magnitude nine earthquake that struck Eastern Japan on 11 March 2011, and subsequent radiation leaks.
- 2 According to an announcement of the National Police Agency dated 8 March 2012, 15,881 people were killed. See, *e.g.*, *Tokyo Shimbun* (Tokyo), 11 March 2013, at 1.
- 3 For example, the Accident Investigation Committee (*Jiko Chousa Iinkai*) of the Diet has investigated the cause and background of the Tohoku Disaster, and published its report on 5 July 2012 concluding that the disaster was "man-made" resulting from the reversal of roles between the regulators and the power company.
- 4 A community that consists of the electric power companies, power-plant builders, bureaucrats, Diet members, media, compliant academic experts, etc. See, e.g., Kasumigaseki ni Genshiryoku Mura, Tokyo Shimbun (Tokyo), 16 May, 2011, at 21
- 5 Law No. 81 of 1997.
- 6 National Environmental Policy Act of 1969, Pub. L. 91-190, Jan. 1, 1970, 83 Stat. 852 (42 U.S.C. §4321 *et seq.*).
- 7 Article 23, para. 1, item 1 of *Kaku-genryou-bussitsu*, *Kaku-nenryou-busshitsu* oyobi Genshiro no Kisei ni kansuru Houritsu (Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors) (Law No. 166 of 1957).
- 8 Article 14 of *Keizai Sangyou Shou Settchi Hou* (Law to Establish the Ministry of Economy, Trade and Industry) (Law No. 99 of 1999).
- 9 Ibid., Article 20, para. 1.
- 10 Ibid., Article 20, para. 3 and Article 4, para. 1, item 57.
- 11 Ibid., Article 20, para. 5.
- 12 Article 55, para. 1 of *Kokka-koumuin Hou* (National Public Service Act) (Law No. 120 of 1947).
- 13 Ibid., Proviso of Article 55, para. 1.
- 14 Supra, note 7, Article 24, para. 2.
- 15 Article 1 of *Genshiryoku İinkai oyobi Genshiryoku Anzen Iinkai Settchi Hou* (Law to Establish Nuclear Commission and Nuclear Safety Commission) (Law No. 188 of 1955).
- 16 Ibid., Article 17, para. 1.
- 17 See, e.g., Sugawara, S. (2010). Genshiryoku Anzen Kyoutei no Genjou to Kadai. Jurist 1399: 35, 36.
- 18 See, e.g., University of Tokyo, Sustainable Energy/Environment and Public Policy, 2007–2008 Genshiryoku Housei Kenkyukai Shakai to Houseido Sek. Bunkakai Chukan Houkoku, at 41.
- 19 See, e.g., Kitamura, Y. (2011). Environmental Law 158.
- 20 Supra, note 17, at 39.
- 21 See, e.g., Genpatsu Anzen Kyoutei Kinrin mo Yousei, Asahi Shime (Tokyo), 25 June 2011, at 1.
- 22 See, e.g., Isshun Zero Jimoto Hanpatsu, Tokyo Shiml'un (Te 16), 17 April 2012, at 2.
- 23 Article 21, para. 2.
- 24 Ibid., Article 33, para. 1.
- 25 Ibid., Article 33, para. 2.
- 26 Supra, note 8, Article 4, para. 1, items 53-56.
- 27 IAEA. (2002). Organization and Staffing of the Regulatory Body for Nuclear Facilities, at Article 2.6. Vienna: IAEA.
- 28 See, e.g., the homepage of the Swiss Federal Nuclear Safety Inspectorate, available at http://www.ensi.ch/en/ensi/ensi-is-the-national-regulatory-body-with-responsibility-for-the-nuclear-safety-and-security-of-swiss-nuclear-facilities.
- 29 Supra, note 14 and accompanying text.
- 30 Sogo Shigen Energy Chousa Kai Genshiryoku Anzen Hoan Bukai Taishin Kouzou Sekkei Shouiinnkai Jishin Tsunami Tishitsu Jiban Goudou WG (32nd) held on 24 June 2009
- 31 *Ibid.*, Minutes of the Working Group, at 16, available at http://www.nsr.go.jp/archive/nisa/shingikai/107/3/032/gijiroku32.pdf.
- 32 Ibid., at 17
- 33 See, e.g., Hoanin ga Hantai Dannen, Tokyo Shimbun (Tokyo), 16 March 2012, at 1.
- 34 See Genshiryoku Hatsuden ni kakaru Symposium nado ni tsuite no Daisansha Chousa Iinkai, Saishu Houkokusho, 30 September 2011, at 11–18.
- 35 Supra, note 10 and accompanying text.
- 36 Amakudari Hyakunin List, Asahi Shimbun Weekly Aera, 11 July 2011, at 19.
- 37 Genpatsu Shuuhen Taishou Denkidai no Ichibu Genkin Kyuufu Amakudari Houjin Dokusen Juchu, Tokyo Shimbun (Tokyo), 7 September 2011, at 1.
- 38 Ibid.
- 39 See, e.g., Dengen Soushitsu Taisaku Bunsho Kakusu, Tokyo Shimbun (Tokyo), 5 June 2012. at 1.
- 40 Ibid
- 41 Genshiryoku Kisei Iinkai Settchi Hou no Sekou Kijitsu wo Sadameru Seirei (Cabinet Order Designating the Enforcement Date of the Law to Establish Nuclear Regulation Authority) (Cabinet Order No. 228 issued on 14 September 2012).
- 42 Ibid., Article 2.
- 43 Ibid., Article 7, para. 1.

- 44 Supra, note 13.
- 45 See, e.g., Kisei-cho Dokuritsu-gyousei-i ni Jikou-an Ukeire, Tokyo Shimbun (Tokyo), 11 May 2012, at 2.
- 46 See, e.g., Kankyou-shou Shudou ni Ji-kou Iron, Tokyo Shimbun (Tokyo), 12 June 2012, at 2.
- 47 As a practical matter, the electric power company should undergo another environmental assessment under the Law and re-obtain a permit from the new regulatory agency upon restarting a nuclear reactor, where it has voluntarily obtained prior consent from the municipality upon restarting a nuclear reactor after an unscheduled stoppage due to an accident or error, *supra*, note 20. This is because the disaster has proved the current permit unjustifiable.
- 48 Article 59, paras 1 and 2 of the Constitution of Japan (3 November 1946).
- 49 This is conjecture by the author. As the history of the Law illustrates (see note 54 and accompanying text), however, business entities have long dominated Japanese politics and objected to the establishment of environmental laws, whose function often disturbs established business practices. Expansion of the scope of jurisdiction of the Ministry of the Environment functions similarly, because business entities do not have much political influence on the Ministry of the Environment.
- 50 Supra, note 27.
- 51 Dengen Kaihatsu Sokushin Zei Hou (Law No. 79 of 1974), Tokubetsu Kaikei ni kansuru Houritsu (Law No. 23 of 2007), and Hatsuden-you Shisetsu Shuuhen Chiiki Seibi Hou (Law No. 78 of 1974).
- 52 A municipality receives 121.5 billion yen as *Dengen Rittchi Chiiki Taisaku Koufukin* and 2.5 billion yen as *Genshiryoku Hatsuden Shisetsu Rittchi Chiiki Kyonsei Koufukin*. It may also receive 2.5 billion yen as *Genshiryoku Hatsuden Shisetsu tou Rittchi Chiiki Tokubetsu Koufukin* per a plan to promote regional development. *See*, e. ency for Natural Resources and Energy, *Dengen Rittchi Seido no Gaiyyu*, vailay e at http://www.enecho.meti.go.jp/topics/pamphlet/denneen.pdf
- 53 Ooi to ha built a leisure complex called *Uminpia Ooi* which includes a marina, lotel, sp., pool, museum, restaurant and a PR facility for the nuclear power industry.

 1. e.s., Ooi-cho-sei Youran, available at http://www.town.ohi.fukui.jp/fresspace/ohi/book982.html and the homepage of *Uminpia Ooi* at http://www.um.pia.com.
- 54 Genshiryoku-hatsuden-sho no Anzen Kakuho ni kansuru Kyoutei-sho, available at the homepage of Genkai Town at http://www.town.genkai.saga.jp/kurashi/kurashi/genshi/000000160.
- 55 See Genkai Town Public Office, Machi no Shoukai-shi, available at the homepage of Genkai Town at http://www.town.genkai.saga.jp/town/kikaku/000000152/pagefile/000000152_002_001.pdf.
- 56 See the homepage of Karatsu City at http://www.karatsu-city.jp/benri_dtl.php?category=0524791001172036796&articleid=08648540012525603211027409698.
- 57 See, e.g., Genkai-genpatsu Shuuhenn no Yon-shi Souki Anzen-kyoutei Youbou e, Nishinihon Shimbun (Fukuoka), 25 April 2012, at 3.
- 58 Harashina, S. (2011). Kankyou Assessment to wa nani ka (What is Environmental Assessment?), at 10.
- 59 *Ibid* at 169
- 60 40 CFR § 1502.14(d).
- 61 40 CFR § 1502.14.
- 62 Statement by Kenji Tanaka, the Chief of the Planning and Adjustment Department of the Ministry of the Environment, at the Environmental Committee held during the 140th session of the House of Representatives of Japan, on 15 April 1997
- 63 Article 14, para. 1, item 7b.
- 64 Harashina, S. (2011). "Risk Management and Environmental Assessment". Science 81-5: 379.
- 65 Supra, note 22 and accompanying text.
- 66 See, e.g., Anzen Yurugasu Katsudansou, Tokyo Shimbun (Tokyo), 10 June 2012, at 24.
- 67 Notification No. 070405002 by the Chief of the General Environmental Policy Department of the Ministry of the Environment on 5 April 2007.
- 68 Ibia
- 69 Supra, note 58, at 174.
- 70 Kankyou Eikyou Hyouka Hou no Ichibu wo Kaisei suru Houritsu (Law No. 27 of 2011).
- 71 Class-1 Projects means the 13 "blacklisted" large-scale projects specified by the Cabinet Order (Article 2, para. 2 of the Law).
- 72 Article 3-2 of the 2011 Amendment, emphasis added.
- 73 Ministry of the Environment, *Kankyou-eikyou-hyouka-hou ni Motozuku Kihonteki-jikou-nado ni kansuru Gijyutsu Kentou Iinnkai Houkoku-sho*, available at http://www.env.go.jp/policy/assess/5-4basic/report.pdf, at 2.
- 74 Article 23.
- 75 Article 24
- 76 Inquiry via telephone made on 16 August 2011.
- 77 According to the minutes of the meeting of the House of Representatives of Japan held on 15 April 1997, the Ministry of the Environment had only 11 personnel in charge of such a review; *supra*, note 62.
- 78 For example, the Minister of the Environment offered the following opinion in relation to the environmental assessment conducted for the construction of the

Nouetsu Jidousha-dou (Nouetsu Expressway): "[The EIS shows that] certain actions have been taken to avoid or mitigate an influence by the project on animals and plants. In addition to these actions, in the event that any endangered animal or plant is newly detected in the course of the project, proper measures should be taken to preserve the environment and minimize the influence on the existence and habitat of the said species. with an advice of the experts".

- 79 Article 9, para. 2 of the Administrative Case Litigation Act (Law No. 139 of 1962) which codifies the court precedents on standing.
- 80 See, e.g., Survey of Foreign Legislation Concerning Administrative Litigations, Jurist No.1250 (2008).
- 81 See, e.g., Shiono, H. (2010). Administrative Law 131. For example, in a case where general consumers sought to challenge a fair competition regulation associated with the display of fruit juices under the Law for the Prevention of Unreasonable Premiums and Misrepresentation related to Products and Services ("Misrepresentation Law"), the Supreme Court held that general consumers' interest was not a statutorily protected interest because it was nothing more than an indirect interest or interest-in-fact arising as a result of the Misrepresentation Law's protection of the public interest. Judgment of the Third Petty Bench of the Supreme Court of Japan on 14 March 1978, available at Supreme Court Civil Cases (Saikou-saibansho Minii Hanrei-shu) 32-2, 211.
- 82 Hunt v. Washington State Apple Advertising Commission, 432 U.S. 333 (1977).
- 83 Shiono supra note 81 at 132.
- 84 Japan Federation of Bar Associations, Kongo no Kankyou-eikyou-hyouka-seido no Arikata ni tsuite (Kankyou-eikyou-hyouka-seido Senmon Iinkai Houkoku An) ni taisuru Iken (12 February 2010).
- 85 Central Environmental Council, Kongo no Kankyou-eikyou-hyouka-seido no Arikata ni tsuite (22 February 2010).
- 86 See, e.g., Shibaike, Y. (2009). Administrative Law, 2nd ed., 290.
- 87 Supra, note 23 and accompanying text.
- 88 42 U.S.C. §4332.
- 89 See, e.g., Kawai, K. (2006). Minpo Gairon 4, 484.
- 90 See notes 91 through 94 and accompanying texts for the broad administrative discretion allowed by the court in granting a permit for the installation of a nuclear reactor.

- 91 Article 33, para. 1.
- 92 Ibid., para. 2.
- 93 See, e.g., Otsuka, T. (2010). Environmental Law: 3rd edition, 270.
- 94 Article 30 of the Administrative Case Litigation Act (Law No. 139 of 1962) which codifies the court precedents on the control on an administrative discretionary disposition.
- 95 Judgment of the Third Petty Bench of the Supreme Court of Japan on 7 February 2006, available at Supreme Court Civil Cases (*Saikou-saibansho Minji Hanrei-shu*) 60-2, 401; Judgment of the First Petty Bench of the Supreme Court of Japan on 2 November 2006, also available at Supreme Court Civil Cases, 60-9, 3249.
- 96 Judgment of the Second Petty Bench of the Supreme Court of Japan on 8 March 1996, available at Supreme Court Civil Cases (*Saikou-saibansho Minji Hanrei-shu*) 50-3, 469; Judgment of the Third Petty Bench of the Supreme Court of Japan on 2 July 1996, available at *Hanrei Jihou* 1578, 51.
- 97 Judgment of the First Petty Bench of the Supreme Court of Japan on 29 October 1992, available at Supreme Court Civil Cases (*Saikou-saibansho Minji Hanrei-shu*) 46-7, 1174.
- 98 In the United States, a federal agency conducting an environmental assessment is subject to the Administrative Procedures Act (Pub. L. No. 79-404, 60 Stat. 237 (1946)), so that a permit, *etc.*, may be revoked if it is arbitrary or capricious in light of the information obtained (5 U.S.C.A. § 706 (2)(A)). The Supreme Court of the US understands that this requirement of the Administrative Procedures Act mandates a federal agency to "take a hard look" at an action's environmental impacts (Robertson v. Methow Valk'y Citizens Council, 490 U.S. 332, 350 (1989)). And, the 4th Circuit held that a co or examining the sufficiency of an agency's environmental analysis under NEPA must of the sufficiency of an agency has taken a "hard look" at an action's environmental impacts, which, at the least, encompasses a thorough investigation into the pair on the risks that those impacts entail (National Audubon Society v. Department of the Navy, 422 F. 3d 174, 185 (4th Cir. 2005)). Thus, US courts simila (1y fail to systematically consider the constitutional value of an interest at issue.

Nigeria

Renewable Energy Sources

- Logal Barriers and Potential -

by Damilola S. Olawuyi*

With overwhelming evidence on the potential and emerging impacts of global climate change on human life and survival, policy makers across the world are weighing up renewable energy options as ways to reduce reliance on fossil fuels.1 Distributed Generation (DG) based on renewable energy technologies such as biomass, geothermal, ocean, solar and wind energy, hydropower, and combined heat and power (CHP) are increasingly gaining prominence as important alternatives for power generation.² In industrialised countries, renewable energy is perceived as a potential option for diversifying energy sources and substituting renewable energy sources (RES) for fossil fuels. For example, the European Union has developed a strategy which hopes to ensure that 22.1 percent of the total electricity consumption in European countries should stem from RES.³

On the other hand, many developing countries see the various types of renewable energy as promising options for reducing existing energy supply deficits and for resolving

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entrenched problems of erratic power supply. According to the World Bank, more than 1.4 billion people worldwide, mostly in Africa, do not have access to electricity.⁴ In Nigeria, for example, many homes and businesses go several weeks without electricity.⁵ The overall power generation in the country now stands at 3000–4000 megawatts (MW), an abysmally low figure for a country of over 150 million people.⁶ Estimates show that based on current demands in Nigeria, the country must generate at least 40,000 MW to meet power demands and to address its power deficiency.⁷

Policy leaders in Nigeria have therefore advocated the exploration of RES options such as photovoltaic solar power generation, wind energy, biomass, and geothermal power for addressing the country's perennial problems of erratic power supply. Studies show that renewable energy resources could indeed meet from 10 to 100 times the total world energy demand, progressing from 10 percent in 2013, to 15–30 percent in 2030, to 20–75 percent in 2050, and to 30–95 percent in 2100.9

However, even though renewable energy options can deliver a more stable power supply for homes and businesses in Nigeria, pre-existing barriers continue to make any meaningful progress in terms of renewable energy investments difficult. Using Nigeria as an example, this paper shows that unless countries address pre-existing legal and institutional deficiencies in power generation and supply, renewable energy options might stagnate and be frustrated. This paper discusses the prospects, potentials and barriers to sustainable power generation through RES in Nigeria.

The paper opens with an overview of the potentials for RES-driven power generation in Nigeria, then identifies and discusses the three main legal and institutional barriers: pre-existing barriers to technology transfer; licensing and tariff bottlenecks under the *Electric Power Sector Reform Act*, 2004; and the absence of intergovernmental coordination and linkages.

Potential for Renewable Energy in Nigeria

Power generation in Nigeria dates back to 1896 when the first power generation plant was constructed in Ijora, Lagos. After this project, many other power generation plants and grids were constructed, in Kainji and Shiroro, for example. Many years of oppressive military rule, corruption and neglect, however, have resulted in inadequate investments in infrastructural facilities in the power sector and the dilapidation of many existing power plants. Consequently, for some years now, power generation and supply in Nigeria have become erratic and nearly non-existent. Currently, only about 40 percent of the country's population have access to electricity and even these do not enjoy an uninterrupted and stead, now supply. Many rural communities in Nigeria are not the connected to national electricity supply grid.

These problems have led to renewed ca. s for the Nigerian government to embrace the rotentials of RES as possible options for resolving Nigera 's multifaceted energy generation and supply problem. 13 RES covers all forms of energy that come from natural resources such as wind, sunlight, water, waves, tides and heat. Currently, more than 10 percent of global energy consumption comes from RES. 14 Power generation through RES ranges across many options for powering homes: solar panels, wind energy, hydroelectric power, biogas and biofuels. Biofuels include fuels produced and derived from plants, biomass and other living organisms such as fats from animals and vegetable oil. According to the National Non-Food Crops Centre, United Kingdom, biofuels reduce greenhouse gas (GHG) emissions by around 90 percent when compared to fossil petroleum.15

Through RES, Nigeria has opportunities to generate additional power that could supplement its conventional electric power supply. Power generation through RES could also help reduce Nigeria's emission of GHGs to sustainable levels. Currently, Nigeria is the largest emitter of GHGs in Africa. Reducing dependence on conventional energy sources could help Nigeria progress towards cleaner energy sources. Investments in RES could also spur economic and social development in the country where more than 90 percent of the citizens live on less than US\$2 a day. Renewable energy investments could create new jobs and

employment opportunities for locals especially in rural areas. UN Secretary-General, Ban Ki-moon, alluded to this when he noted that renewable energy has the ability to lift the poorest nations to new levels of prosperity.¹⁸

Similarly, reducing Nigeria's dependence on fossil fuels could also help resolve the perennial environmental problems and conflicts associated with oil production in Nigeria. ¹⁹ An alternative energy supply could reduce the country's total dependence on oil production thereby diverting attention from trouble spots in the Niger Delta.

Nigeria has enormous potential to turn these promises of RES into reality. The availability of extensive arable lands for agriculture, and the relatively low cost of farming activities in Nigeria, suggest that it is well positioned to take a primary role in the production of commercial quantities of biofuel.20 With a land area of 924 million hectares and a distinctively rich soil topography, the country has significant opportunities for large biofuel plantations. Nigeria is currently the largest exporter of cassava in the world.²¹ It is also a known source of *Jatropha curcas*, sugarcane, soya, veet sorghum, oil palm and coconut, all of which are crucial to biofuel production.²² Similarly, the very not to operature in Nigeria increases the prospects of ger rating power through photovoltaic solar panels.²³ The avanability of large dams and rivers in Osun State, as many other states, also makes hydroelectric power generation a feasible endeavour in Nigeria. Similarly, there is a great potential for wind turbines, due to the very Thigh wind intensity in many parts of Nigeria.²⁴ If these potentials are well tapped, Nigeria could be generating more than enough energy to power urban and rural homes, to provide for its industries and to reduce its dependence on fossil fuels. For comparison, note that Denmark currently generates more than a quarter of its electricity from wind,25 while Brazil has one of the largest renewable energy programmes in the world and currently generates over 18 percent of its energy from biofuels.26

Exciting as these prospects are, however, RES opportunities resemble conventional energy systems, in that they will require adequate legal and institutional frameworks to promote infrastructural development for a competitive power generation and transmission market; to foster private investments in power generation, distribution and transmission; and to remove administrative roadblocks and licensing/permitting delays. In the context of conventional power generation, these factors have contributed to Nigeria's dire power situation. If appropriate lessons are not learnt and if these problems are not fixed, they will make it difficult for any meaningful progress to be made in terms of renewable energy investments in Nigeria. There is therefore a need to address the pre-existing legal and institutional barriers to power generation and supply in Nigeria, and to put in place robust legal frameworks designed specifically to promote renewable energy investments in Nigeria.

Legal and Institutional Barriers

Power generation through RES requires up-to-date, environmentally sound technologies (ESTs), such as solar panels, wind turbines, and remote sensing devices.

Most of these technologies are capital-intensive, require extensive infrastructure and are not readily available in the developing world. There is therefore the need for technology transfer and for capital investments by the private sector, multinational corporations and development agencies, in order to transfer modern ESTs to developing countries such as Nigeria. The Federal Government of Nigeria identified this issue in its National Energy Policy:

The power sector is very capital intensive. It is obvious that Government, with its many responsibilities in other sectors of the economy, cannot fund its development ... There is therefore the need to reform the sector so as to: attract and encourage private sector participation.²⁷

Investment in Nigeria's power sector has generally not been the most straightforward endeavour. Aside from the country's volatile investment climate, there are legal and institutional barriers and disincentives to foreign investments and technology transfer to Nigeria. Such barriers stifle renewable energy investments and limit development of the country's power infrastructure, making Nigeria a less ideal location for power sector investments. The following sections identify these legal barriers and analyse their negative impacts on the effective implementation of power generation through RES in Nigeria.

Legal Barriers to Technology Transfer

Technology transfer to Nigeria has been stifled by the narrow scope of the Nigerian law on technology transfer – the National Office for Technology Acquisition at Promotion Act of 1979 (NOTAPA). The Act estrablished a body known as the National Office for Technology Acquisition and Promotion (NOTAP), charged with ensuring the acquisition of foreign technologies. NOTAP has a legal identity, enabling it to implement technology acquisition and promotion, and its de Topment, via an efficient absorption and adaptation.



Courtesy: The Will

The process of transferring cleaner technologies to Nigeria has been difficult, however, due mainly to the narrow scope of NOTAPA.²⁹ Put in place many years ago, the Act's technology classifications do not include modern ESTs, nor do they mention renewable energy technologies.

This makes it difficult or impossible for investors to fit such technologies into any existing category of permitted technologies. Moreover, unlike many countries which apply lower tariffs and special incentives to attract investors to clean technologies, the Act's failure to recognise or mention renewable energy technologies often means that such technologies do not enjoy any special tax exemption or incentive. Tax exemptions and incentives for clean technologies are one of the most important ways of encouraging the development of RES technologies.

The NOTAPA has also been criticised for its failure to clearly state the procedures for transferring technologies into Nigeria and for the inadequate modes of screening used for technologies coming into Nigeria. A reverse implication is that since the Act is silent on the question of what technologies qualify as clean technologies, for the purpose of transfer to Nigeria, NOTAPA may not exclude environmentally unsound technologies. This major gap arises because sustainability is not a consideration for the transfer of technologies into Nigeria. As a consequence, unscrupulous investors may transfer dirtier technologies into Nigeria maer the cover of the RES.

Similar, the NOTAP procedures for the transfer of technologies into Nigeria are complex and cumbersome, as are the processes for obtaining permits and approvals for such transfers. In the absence of clear regulations on these, prospective RES investors are left without easily accessible guidelines on how to transfer clean technologies into Nigeria. The current procedures frustrate investors; a simple application could take several weeks and months, while many investors have to deal with multiple governmental agencies and ministries to obtain the requisite clearance and permits. The end result is that these processes act as disincentives for technology transfer.

The issue of intellectual property rights (IPR) is also not addressed in the Act. The absence of a sound and realistic IPR linkage to the NOTAP weakens its ability to adequately facilitate the transfer of clean technologies into Nigeria. According to Akande, the modern trend in technology transfer is to encourage technological inventors, by granting them the rights to share and to receive royalties from the proceeds of their inventions.³¹ NOTAPA, however, does not do this. The Act does not make provision for the granting of royalties to owners of inventions for the transfer of their inventions to Nigeria. By not laying down such competitive incentives for inventors of modern and up-to-date technologies, the Act fails to motivate or encourage such holders of IPRs to consider Nigeria in the distribution of their latest inventions.

These deficiencies of NOTAPA have remained major disincentives for prospective investors to transfer cleaner technologies to Nigeria. There is a need to reform the Act in line with modern realities and to reposition NOTAP itself to serve as a "one-stop shop" for technology transfer into Nigeria.

Loopholes in the Electric Power Sector Reform Act 2004

For many years, the rigid provisions of the National Electric Power Authority (NEPA) Act of 1972³² have made

the approval of energy-related projects very difficult. By virtue of this Act, NEPA was vested with the monopoly on the generation, transmission and distribution of electricity in Nigeria. With this monopoly, all matters dealing with power generation in Nigeria were solely under the control of NEPA.³³ It was perhaps in an attempt to break this monopoly that the Nigerian National Assembly passed the Electric Power Sector Reform Act 2004 (EPSRA).³⁴ This Act provides the legal framework for the unbundling of NEPA (now re-designated as The Power Holding Company of Nigeria). It seeks to create a level playing field for private investments in the Nigerian power sector, creating the Nigerian Electricity Regulatory Commission (NERC) as the body responsible for the approval of electricity generating companies and for laying down economic and technical regulations for the electricity supply industry. In its preamble, EPSRA states the following objectives:

[to] provide for the formation of companies to take over the functions, assets, liabilities and staff of the National Electric Power Authority; [to] develop competitive electricity markets; [to] establish the Nigerian Electricity Regulatory Commission; [to] provide for the licensing and regulation of the generation, transmission, distribution and supply of electricity; [to] enforce such matters as performance standards, consumer rights and obligations; and [to] provide for the determination of tariffs.³⁵

However, although the Act removed the operat onal and regulatory responsibility of the electricity is due by from the Power Holding Company of Nigeria, in the lent power projects continue to experience the some pariers relating to the excessive powers to control man et forces. First, the Act places a restriction on the capacity of power projects that can be carried out without hearing. Under Section 62 of the EPSRA, licensing an andatory (i) for all power projects that exceed 1 MW in aggregate at one site; (ii) where any person or undertaking distributes electricity with a capacity not exceeding 100 kilowatts (KW) in aggregate at a site; or (iii) in such other instances as the NERC determines in the public interest. While these restrictions are necessary to regulate and control power generation, they stifle investments in large-scale power projects, especially when investors have to battle several administrative bottlenecks to obtain such licences. Many renewable energy projects have capacities to deliver several megawatts of electricity. For example, the world's largest geothermal power complex, in California, has a capacity of 750 MW and the solar thermal power installation in California's Mojave Desert has a capacity of 354 MW.³⁶ Considering the promise offered by these large-scale renewable energy projects, projects with 1 MW capacity should become less of a focus, and the process and procedures of obtaining power generation licences and permits become relatively easier and less cumbersome.

Another concern is the excessively "command-and-control" approach of the NERC in pre-determining the prices of electricity. NERC is authorised by the EPSRA to create the methodologies for regulating electricity tariffs/

prices and trading, in addition to electricity transmission, distribution and system operations.³⁷

The exercise of these powers by NERC has seen many investors in independent power projects (IPPs) complain of an over-regulated and non-competitive market. Market-driven IPPs would expect returns on investments in privately generated electricity. NERC's command-and-control style, however, is far more controlling than monitoring. Instead of establishing a flexible and competitive baseline for rates, NERC places an obligation on IPP investors to charge a pre-approved rate for power generation. This has been a major disincentive to IPPs in Nigeria as there continues to be tension and a disconnect between electricity regulations and the market forces of demand and supply in the electricity sector in Nigeria. Many of these disputes have ended up in the courts.

In one such case in 2008, Funke Adekoya, SAN v. VGC Management & Maintenance Co. Limited & Eko Electricity Distribution Company, ³⁸ the respondent funded the design, construction and commissioning of an injection sub-station. Under this project the respondent provided power to the residents of the Victoria Garden City Estates. In a challenge filed by the applicant, challenging the rates, the NERC held that the respondents could not increase the electricity tariffs payable by the residents of VGC Estates, as all the IP, are under a legal obligation to abide by the NERC prior-approved electricity tariffs or rates.

Similarly in *Petadis Enterprise v. HFP Properties Limited*, the petitioner, a business at Ikota Shopping Complex, challenged the electricity rates charged by the respondents.³⁹ NERC held that pursuant to Sections 62, 67 and 69(1) of the EPSRA, the electricity distribution arrangement at Ikota Shopping Complex was illegal as the respondents did not have the necessary permit, and also that the tariffs levied exceeded the price fixed by NERC. The respondent's appeal failed, as NERC held that the lack of a licence prohibits an unlicenced person from engaging in the business of generating more than 1 MW of electricity at a site, and/or from distributing more than 100 KW in aggregate. Even if the respondent's generation and distribution had been legal, it could not offer electricity for more than the NERC-approved price.

The excessive powers of NERC have stifled the competitiveness of the Nigerian electricity markets thereby serving as disincentives to investors. If Nigeria is to attract investments in power generation through RES, this issue of competitiveness and profits for investments must be addressed. Investors must see the opportunity to gain profits from investments in expensive RES technologies and independent power projects without excessive government interference. NERC should be reconstituted to play more of a monitoring and watchdog role by establishing price baselines as opposed to dictating fixed pricing for investors. This way, the market outlook of the electricity sector in Nigeria could be retained, thereby providing incentives for more investments.

Lack of Intergovernmental Linkages

Various government ministries, organisations and State parastatals have prominent roles to play in approving power projects in Nigeria. At every point, the execution of power projects in Nigeria requires the sanction of more than ten government parastatals and 15 government ministries.⁴⁰ For example, the Ministry of Finance has roles to play in currency importation and approval of payment instruments, while the Ministry of Internal Affairs grants approvals for project execution. Also, the Corporate Affairs Commission grants approvals for foreign agencies to carry out investment activities, while Ministries like Power, Energy and Transportation will have to be involved in approving all projects to be executed under their ministries. It becomes a herculean task for investors to get approval from each of these ministries, as there is limited communication and coordination between them. These weak linkages often create a situation in which ministries and agencies work at cross-purposes in their separate approval processes. Investors have to shuttle from one ministry to another and from one government agency to another. The failure of the Nigerian government to meaningfully coordinate the relevant ministries and agencies makes project implementation less attractive to investors, thereby posing an institutional barrier to investments in Nigeria's power infrastructure.

Beyond these processes in federal ministries and departments, parallel approval systems address environmental issues under Section 20 of the 1999 Constitution of the Federal Republic of Nigeria. This section vests state governments with powers to separately legislate on environmental issues. ⁴¹ Thus, in addition to compliance with the federal environmental procedures and policies, one must also consider the separate environmental procedures and policies and adopt separate approval processes for cryp. g out RES investments in the states where one's projects will be sited. This double approval system complicates the approval process for power projects even more

The current situation, whereby investor must obtain approvals and permits from multiple in stries at both the federal and state levels, has proved to be a major barrier and disincentive to investments in Nigeria's power infrastructure. With appropriate intergovernmental coordination, these processes could be more straightforward. Such coordination would also simplify the process of passing information between government ministries, thereby removing irrelevant bureaucracies.

Conclusion

Power generation through RES technologies could provide alternatives for generating cleaner and more sustainable electricity in countries with limited power supply. If the potentials and promises of RES technologies are adequately leveraged, Nigeria could improve its current power situation, attract investments in power infrastructures and transit from over-reliance on fossil fuels to cleaner, sustainable, renewable energy sources. For this to happen, it must address the pre-existing legal and institutional deficiencies that make conventional power generation and supply difficult in the first place. Nigeria's current power problems are exacerbated by the absence of robust legal and institutional frameworks that could smooth the transfer of appropriate technologies and sustain

private investments in power projects. These barriers must be removed if Nigeria wishes to leverage the promises and potentials of generating power through renewable energy sources.

Notes

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- 3 Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity from renewable energy sources in the internal electricity market.
- 4 See the World Bank, "Energy and the World Bank", available at http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTENERGY2/0,contentMDK: 22858145~pagePK:210058~piPK:210062~theSitePK:4114200,00.html#1.
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- 6 Communique the K and Table on Power Infrastructure, Investment and Transforma in Agenda, see http://www.nials-nigeria.org/round_tables/communique compour.pdf.
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- 8 See Report of the Presidential Task Force on Power, at http://www.nigeri_howereform.org/index.php?option=com_content&view=article&id=78& Itemid=>0.5 see also International Centre for Energy, Environment & Development (ICEED) and Nigerian Federal Ministry of Power and Steel. (2006). "Renewable Electricity Policy Guidelines". Abuja: ICEED, at http://www.iceednigeria.org/workspace/uploads/dec.-2006.pdf.
- Supra, note 4. The World Bank also supports development of energy systems based on least-cost options with an emphasis on renewable sources such as hydropower, wind, solar and geothermal, while also promoting energy efficiency.

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- 11 See Adenikinju, A. (2005). "Analysis of the Cost of Infrastructure Failures in a Developing Economy: The Case of the Electricity Sector in Nigeria". African Economic Research Consortium (AERC) Research Paper 148. Nairobi: AERC.
- 12 Supra, note 10.
- 13 Supra, note 6.
- 14 Olaniyi, A. (2007). "Biofuels Opportunities and Development of Renewable Energies Markets in Africa: A Case of Nigeria", available at http://www.ifad.org/events/jatropha/presentation/nigeria.pdf.
- 15 National Non-Food Crops Centre. (2010). "GHG Benefits from Use of Vegetable Oils for Electricity, Heat, Transport and Industrial Purposes", available at http://www.nnfcc.co.uk/tools/ghg-benefits-from-use-of-vegetable-oils-for-electricity-heat-transport-and-industrial-purposes-nnfcc-10-016.
- 16 UN Climate Secretariat. "Emissions Summary for Nigeria", available at http://unfccc.int/files/ghg_data/ghg_data_unfccc/ghg_profiles/application/pdf/nga_ghg_profile.pdf.
- 17 Okoeki, O. (2011). "90 percent Nigerians live on less than \$2 per day". *The Nation*, 23 December 2011, available at http://www.thenationonlineng.net/2011/index.php/business/30792-'90%25-nigerians-live-on-less-than-\$2-per-day'.html.
- 18 Imagine the world at night as seen from space. I am sure many of you have seen this picture, but every time I see it I am reminded of one of the most important issues of our day energy poverty. The United States is brightly lit. Africa is dark. So is much of the rest of the developing world. Cities show on the map, but the rural poor live quite literally in the dark. See "U.N. Secretary-General: Renewables Can End Energy Poverty", at http://www.renewableenergyworld.com/rea/news/article/2011/08/u-n-secretary-general-renewables-can-end-energy-poverty.
- 19 Nigeria is reputed to flare more natural gas associated with oil extraction than any other country on the planet. Estimates suggest that of the 3.5 billion cubic feet of associated gas (AG) produced annually, 2.5 billion cubic feet, or about 70 percent is wasted via flaring. This equals about 25 percent of the UK's total natural gas consumption, and is the equivalent of 40 percent of the entire African continent's gas consumption. See Social Development Integrated Centre. (2009). Flames of Hell: Gas Flaring in the Niger Delta. Port Harcourt: SDIC, at http://www.saction.org/home/saction_image/flames_of_hell.pdf; see also Environmental Rights Action (ERA). (2008). "Fact Sheet: Harmful Gas Flaring in Nigeria";

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- 30 Akande, T. (2002). NOTAPA and Technology Transfer in Nigeria, at 2. Nigerian Institute of Social and Economic Research, NISER Joint ICTSD/FES.

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- 38 Order No. NERC/H/061. See also *Nicon Town Residents and Plot Owners*Association v. Nicon Town Management Company.
- 39 Case No. NERC/10/0011/08; for details of these cases see www.nercng.org.
 40 Ministries in Nigeria that have roles to play in the execution of power projects include the Federal Ministry of Environment, Ministry of Foreign Affairs, Federal Ministry of Justice, Ministry of Science and Technology, Federal Ministry of Water Resources, Federal Ministry of Agriculture and Rural Development, Federal Ministry of Finance, Federal Ministry of Commerce, Federal Ministry of Industry, Federal Ministry of Aviation, Federal Ministry of Transport, Federal Ministry of Information, Federal Ministry of Solid Minerals Development, Federal Ministry of Works and Housing, Technology, 10 Ministry of Power and Steel, Federal Ministry of Social Development and the Federal Ministry of Cooperation and Integration in Africa.
- 41 The Feder. Government of Nigeria cannot exercise exclusive jurisdiction on matters listed the concurrent legislative list. By virtue of Section 4 of the 1999 Constitut on of Vigeria, matters in the concurrent legislative list are within the jurisdictic of both the Federal and state governments. In case of conflict, however, the Federal law prevails. See Section 4(5), 1999 Constitution of Nigeria.

India

Greenhouse Gas Mitigation

by Bharat H. Desai*

The issue of climate change has emerged as one of the most important common environmental concerns of mankind since the UN General Assembly adopted a 1988 resolution¹ to that effect. The main thrust of the present global climate change regime - as embodied in the 1992 UN Framework Convention on Climate Change (UNFCCC) and the 1997 Kyoto Protocol – is the mitigation of greenhouse gas (GHG) emissions in a cost-effective manner as well as "within a time-frame sufficient to allow ecosystems to adapt naturally to climate change".2 This focus has obscured the importance of addressing the vulnerability of natural and human systems in developing countries and their adaptation to adverse impacts of climate change. India signed the UNFCCC on 10 June 1992 and ratified it on 1 November 1993. It ratified the Kyoto Protocol on 26 August 2002.3

In 1990, the total carbon emissions from India were estimated to be 1,001,352 gigagrams,⁴ which was about 3 percent of global CO₂-equivalent emissions. Using this figure, the country's *per-capita* CO₂-equivalent emissions for 1990 were estimated to be 325 kilograms.⁵ In 2000,

total GHG emissions from India were estimated to be 1,566,200 gigagrams, which ranked seventh in the world and represented about 3.6 percent of the world's total, although India's *per-capita* emissions remained relatively small (1,500 kilograms per person, which ranks 171st).⁶ However, according to a Report prepared by the Indian Network for Climate Change Assessment (INCCA),⁷ India's ranking in 2007 in aggregate GHG emissions in the world was fifth, behind the US, China, EU and Russia. In that year, India's net GHG emissions were reported to be 1,727.71 million tonnes of CO₂ equivalents.⁸ The power, steel, cement, residential and transport sectors are among the main sectors that contribute to GHG emissions and, in turn, offer potential for reduction.⁹

During its two decades (1992–2012) of existence, the climate change regime under the auspices of the UNFCCC has become more complex, as scientific evidence on the adverse effects of climate change has mounted. As a central pillar of climate-change architecture, the legally accepted principle of differentiation underscores that different countries bear different levels of responsibility for their contribution to atmospheric GHG concentrations. It is feared that the adverse impacts of climate change could fall disproportionately on developing countries,

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including India. This is especially so since the Indian economy is closely tied to its natural resource base as well as to climate-intensive sectors (such as agriculture). In terms of historical contribution to GHG emissions, the UNFCCC recognises that "the largest share of historical and current global emissions of greenhouse gases has originated in developed countries... and that the share of global emissions originating in developing countries will grow to meet their social and development needs. ... Accordingly, the developed-country Parties should take the lead in combating climate change and the adverse effects thereof". Viewed from this perspective, the *per-capita* GHG emissions of India are insignificant as compared to even the global average as well as the cumulative emissions of developed countries.

Since GHG emissions are directly linked to economic activity, India's economic growth will necessarily involve growth in GHG emissions to meet its developmental goals (justified under the UNFCCC Preamble), 11 improve the living conditions of the vast population, and help eradicate poverty. Thus, India faces the challenge of sustaining its rapid economic growth while dealing with the global threat of climate change. It has been argued, in consonance with the position of the Group of 77 and China, that any constraints on the emissions of GHGs by India will reduce growth targets. Although India does not have any legally binding commitments to reduce GHG emissions under the present climate change regime, however, it has taken several steps to do so through national policies plans, sectoral legislation and judicial directions. In lia has adopted policies for sustainable development that promote energy efficiency in a number of ways. All g for an appropriate mix of fuels and prima v energy sources (including nuclear, hydro-power and re. ewable sources), addressing energy pricing, man lating pollution abatement, and considering the roles of afforctation, mass transport, and differentially higher gio, h rates within the less-energy-intensive services sectors (as compared to manufacturing), resulting in a relatively benign GHG growth path. Cumulatively, these efforts are driven mainly by concerns about the adverse impacts of climate change on the economy, human health, biodiversity and the environment, since several reports, including the Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), list India among the countries likely to be worst affected by climate change. 12 In fact, while releasing a recent assessment report by INCCA, then-Minister for Environment and Forests Jairam Ramesh noted that, "There is no country in the world that is as vulnerable, on so many dimensions, to climate change as India is. This makes it imperative for us to have sound evidence-based assessments on the impact of climate change".¹³

This paper provides an overview of the existing framework for GHG mitigation in India. The analysis aims to identify the gaps in the policy, legal and institutional framework to deal with the issue of climate change as it is perceived in India. It also seeks to provide some possible solutions and recommendations to improve upon the existing legal framework for combating GHG emissions in India.

Review of Policy and Law Policy

India was among the first few countries in the world to include provisions for the protection and improvement of the environment in its national Constitution, 14 and it has taken several steps in designing policies and legislation to overcome environmental problems. With regard to climate change, India has undertaken numerous response measures that are contributing to the objectives of the UNFCCC. In fact, it has pursued climate-friendly policies and measures for quite some time, driven by awareness of the potential impacts of climate change and by the need to minimise energy consumption - particularly oil consumption. Some of these efforts have been going on for a long time and are institutionalised under the concerned ministries in a number of ways through policies and programmes. In this context, relevant strategies/measures include an emphasis on energy conservation, promotion of renewable energy sources, abatement of air pollution, afforestation, wasteland development, and fuel substitution policies. The government of India has also set up an Expert Group on Low Carbon Strategies for Inclusive Growth. 15 The Expert Group, chan, day Kirit Parikh, is inter-sectoral and based in the Planning Commission.

India has several overarching policies that are relevant to cl. are change, many of which are mentioned at various points in this paper. A few of the most important policies are described in more detail in the following paragraphs.

Policy under the Five-Year Plans

India's development plans seek to balance economic development and environmental concerns. The planning process is guided by the principles of sustainable development. There has been an evolutionary process for mainstreaming environmental protection in India's planning process. The first formal recognition of the need for integrated environmental planning was made when the Union Government constituted the National Committee on Environmental Planning and Coordination (NCEPC) in 1972. Concerns about environmental harm came to the fore especially during the Sixth Five-Year Plan (1980–85), which contained a separate provision for environmental degradation. Steps were also included to address water, air, noise and land pollution as well as hazardous, bio-medical and electronic wastes.

The Seventh Plan (1985–89) was the continuation of the previous plan with some new additions. The basic approach of the Seventh Plan was sustainable development in harmony with the environment. There was a growing realisation that poverty and under-development contributed to many of the environmental problems. As a result, it was recognised that environmental management needed to be integrated with development planning. Therefore, during the Eighth Plan (1992–97), the Planning Commission set up several expert groups/committees to formulate long-term sectoral policies so as to reconcile the environment-development interface. In addition, a number of national-level bodies were constituted by the Union Ministry of Environment and Forests (MoEF). One of the objectives of the Ninth Five-Year Plan (1997–2002) was to ensure

environmental sustainability of the developmental process through social mobilisation and participation of people at all levels. The Tenth Plan (2002–7) presented a coordination of some previous projects with new initiatives. The Eleventh Plan (2007–12) also included some specific objectives relevant to climate change, including increasing forest cover by 5 percent, controlling vehicular emissions while supporting public transport, reducing energy intensity by 20 percent by 2016–17, and increasing access to renewable energy (including in rural villages). ¹⁶

The Twelfth Five-Year Plan (2012–2017) underscores the need for the development of agro-climatic-zone-specific water-harvesting and water-management technology, to enable rural communities to withstand the effect of climate change.¹⁷ It also suggested policy responses to tackle the impacts of climate change, to be coordinated and synergised along all relevant sectors. In this context, the Planning Commission set up a Steering Committee on Environment, Forest & Wildlife and Animal Welfare in 2011.¹⁸ One of the sub-groups specifically dealt with the issue of climate change. In its report entitled "Climate Change and 12th Five Year Plan", this sub-group enunciated a strategy that should be adopted during the Twelfth Five-Year Plan in order to combat climate change. 19 That strategy includes integrating the goals of sustainable development and low-carbon-inclusive growth in the overall structure of the plan. It envisages the launching of schemes and programmes to strengthen capacity for scientific assessment, GHG measurement and monitoring and thereby to achieve environmental protection through a coherent strategy of adaptation and mitigation action

National Forest Policy, 1988

India has had a national forest policy since \$94. This policy was revised in 1952 and in 1938. The principal aim of the Forest Policy has been to ensure environmental stability and the maintenance of the logical balance, including atmospheric equilibrium. More recently, a National Forestry Action Program (NFAP) was formulated as a comprehensive strategic long-term plan. The objective of the NFAP is to bring 33 percent of the area of the country under tree/forest cover via afforestation by 2012 (as compared to about 24 percent in 2003) and to arrest deforestation.

National Environment Policy, 2006

The National Environment Policy (NEP)²¹ provides the basis for the integration of environmental concerns in all relevant development processes. Further, the inclusion of environmental considerations in sectoral policy making has been recognised in the principles underlying the policy. The NEP also emphasises the need to institutionalise mechanisms to operationalise environmental concerns at all levels of government as well as the need to strengthen relevant linkages among various agencies at the central, state and district levels that are charged with the implementation of environmental policies.

The NEP contains the following core principles: that human beings are at the centre of concerns for sustainable development and are entitled to a healthy and productive life in harmony with nature; that the right to development must be fulfilled to equitably meet the needs of present and future generations; that environmental protection shall constitute an integral part of the development process; that the precautionary approach is essential so that lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent credible threats of environmental degradation; and that economic efficiency is an important goal in various public actions for environmental conservation.

In the context of climate change, the NEP emphasises that "[a]nthropogenic climate change, significant responsibility for which clearly does not lie with India or other developing countries, may, on the other hand, have likely adverse impacts on India's precipitation patterns, ecosystems, agricultural potential, forests, water resources, coastal and marine resources, besides increase in range of several disease vectors. Large-scale resources would clearly be required for adaptation measures for climate change impacts, if catastrophic human misery is to be avoided".²²

The NFP em, rasises the principle of common but differentia a responsibility; the right to development and equal er, capita entitlement to global environmental resources for all countries; the need to identify areas of vulnerability and to assess the need for adaptation the ugh watershed management, coastal zone planning and regulation, health programmes, forestry management, and agricultural technologies and practices; and the importance of mechanisms by which Indian industry can benefit from the global Clean Development Mechanism (CDM) under the Kyoto Protocol. The NEP emphasises multilateral approaches and suggests participation in voluntary partnerships with developed and developing countries, as a means of responding to the challenges of climate change.²³

National Action Plan on Climate Change, 2008

The Prime Minister of India, Manmohan Singh, unveiled the National Action Plan on Climate Change (NAPCC) on 30 June 2008.²⁴ It sought to gradually move towards a less carbon-intensive growth pattern, increased reliance on renewable sources of energy and higher levels of energy efficiency. The plan outlines existing and future policies and programmes for addressing climate change mitigation and adaptation, with a focus on eight "missions": (i) pursuing solar energy; (ii) urging energy efficiency; (iii) creating a sustainable habitat; (iv) conserving water; (v) preserving the Himalayan ecosystem; (vi) creating a "green" India;²⁵ (vii) creating sustainable agriculture; and (viii) establishing a strategic-knowledge platform for climate change. Through this modus operandi, the Action Plan seeks to put into action multi-pronged, long-term and integrated strategies for achieving key goals. In doing so, it could make India's economic development energy-efficient by means of a graduated shift from an economy based on fossil fuels to one based on non-fossil fuels.

The Action Plan is based upon seven guiding principles (presented in Figure 1) that will form the basis for a sustainable development path that also advances economic and environmental objectives. The Plan emphasises an overriding priority of maintaining high economic growth

rates to raise living standards in the country and identifies "measures that promote our development objectives while also yielding co-benefits for addressing climate change effectively". The Plan also ambitiously takes the pledge that "despite our developmental imperatives, our *percapita* GHG emissions will not exceed the *per-capita* GHG emissions of the developed industrialised countries". ²⁶

The respective ministries with lead responsibility for each of the eight missions are directed to develop objectives, implementation strategies, and timelines, as well as monitoring and evaluation criteria – a process that will take some time to complete. Outcomes of this process are to be submitted to the Prime Minister's Council on Climate Change. The Council will also be responsible for periodically reviewing and reporting on each mission's progress. In order to quantify progress, appropriate indicators and methodologies will be developed to assess both avoided emissions and adaptation benefits.

Figure 1. Guiding Principles of India's National Climate Action Plan



Regulatory Framework by Sector

At present, there is no specific legislation that deals exclusively with the regulation of GHG-emission sources in India, but several environmental regulations do provide for climate co-benefits. In the period following the ground-breaking Stockholm Conference on the Human Environment (1972), India implemented several environmental laws to deal with growing problems, as well as general legislation for environmental protection in India, together providing a legal framework that can be used in regulating GHG emissions and their sources. The relevant elements of that statutory framework are the

Environment (Protection) Act, 1986; the Air (Prevention and Control of Pollution) Act, 1981; the Indian Forests Act, 1927; the Forest (Conservation) Act, 1980; and other legislation related to energy, *e.g.*, the Energy Conservation Act, 2001 and the Electricity Act, 2003.

In recent initiatives for mitigating GHG emissions, the sectoral approach is being considered an important tool to combat climate change by regulating emissions "at their sources" in various sectors of the economy. The power, steel, cement, residential and transport sectors, as the most polluting sectors, offer possibilities for large reductions in emissions. Improving the efficiency of coal and electricity use could significantly reduce emissions from various sectors of the Indian economy. The power sector is responsible for the highest level of direct CO₂ emissions of any sector in India (42 percent), followed by iron and steel, road, railways and air transport, and coal.²⁷

India has taken important policy measures at the sectoral level with regard to GHG emissions (see Table

tor comparative picture). Many of the sectoral policies, plans and measures en phasise energy conservation, increased efficiency, and switching over to renewable energy sources.

Air Quality

The Air (Prevention and Control of Pollution) Act, 1981 (Air Act)²⁸ provides the legal and institutional framework for the prevention, control and abatement of air pollution, including GHG emissions. The term "emission" has been defined in Article 2(j) as any solid or liquid or gaseous substance coming out of any chimney, duct or flue or any other outlet. The Air Act provides for adoption of efficiencyenhancing measures related to fossil fuels for abatement of air pollution. For instance, specific emission limits are prescribed for vehicles. It also mandates reducing urban pollution. As a result, the transport sector is gearing up to face the challenges of providing for more energy-efficient vehicles. Use of these air pollution measures may lead to the dual benefits of both local air-pollution abatement and GHG-emissions abatement. The Supreme Court of India has recently

issued notice to the Union of India on enforcement of standards in tune with Euro V (known locally as *Bharat*) for diesel and petrol vehicles.²⁹

Energy Conservation

The Energy Conservation Act (2001)³⁰ is the most important multi-sectoral legislation in India with regard to energy consumption and thereby GHG emissions. The Act specifies energy consumption standards for equipment and appliances; establishes and prescribes energy consumption norms and standards for consumers; prescribes energy conservation building codes for efficient use of energy

Sectors	Policy framework	Legislative framework	Measures	Institutional framework
Iron and steel	National Steel Policy, 2005; National Steel Policy 2012 (draft)		Environmental and forest clearances; Environmental audit	Central Pollution Control Board; State Pollution Control Board
Transport sector	National Urban Transport Policy, 2006; Automotive Mission Plan 2006–2016; National Electric Mobility Mission Plan 2020	Motor Vehicles Act, 1988; PUC Norms	National Ambient Air Quality Standards; Inspection of vehicles – Euro I and V Emission Norms	Ministry of Urban Development
Power	National Electricity Policy, 2005; Revised Mega Power Project Policy 2009; New Hydro Policy 2008; Rural Electrification Policy 2006	Energy Conservation Act, 2001; Electricity Act, 2003	National Bio-Energy Mission; Action Plan for Energy Enficiency	Ministry of Power, Bureau of Energy Efficiency (BEE)
Energy	Energy policies driven by the imperatives of sustainable development, Integrated Energy Policy; National Hydrogen Energy Road Map, 2006	Energy Con ervation Act, 2001	Vawaharlal Nehru National Solar Mission; National Mission for Enhanced Energy Efficiency; Mandatory energy audit in nine industrial sectors	Ministry of New and Renewable Energy, National Hydrogen Energy Board
Commercial buildings	Mission on Sustainable Habitat in the Nation 1 Action Plan; Natural Urban Housing and Habitat Policy 2007	Nergy Conservation Building Code (ECBC), 2006; Green Rating for Integrated Habitat Assessment (GRIHA), 2001	Environmental Impact Assessment (EIA) requirements for large buildings	Bureau of Energy Efficiency (BEE)

in commercial buildings; and establishes a compliance mechanism for energy consumption norms and standards through energy audits by accredited auditors.

The Energy Conservation Act established a Bureau of Energy Efficiency (BEE) in 2002 in the Ministry of Power as a sectoral regulatory body. Its Governing Council, which is responsible for the general supervision, direction and management of BEE, is headed by the Union Minister of Power and consists of secretaries of various ministries, heads of various technical agencies under the ministries, industry members, equipment and appliance manufacturers, architects, consumers, and members from each of the five power regions representing the states of the region.

The primary objectives of the BEE are to improve energy efficiency and reduce the energy intensity of the Indian economy through various regulatory and promotional instruments. In this regard, it is required to develop policies and strategies with a focus on selfregulation and market principles for all sectors of the economy. Further, BEE is empowered to establish a compliance mechanism to measure, monitor and verify energy efficiency in individual sectors.

On 24 August 2009, the Prime Minister's Council on Climate Change approved in principle the National Mission on Enhanced Energy Efficiency (NMEEE). Then, on 24 June 2010, the Union Cabinet approved the implementation framework of the NMEEE.³¹ The Mission includes several new initiatives – the most important being the Perform, Achieve and Trade (PAT) Mechanism, which will cover facilities that account for more than 50 percent of the fossil fuel used in India, and help reduce CO₂ emissions by 25 million tonnes per year by 2014–15.

Power Sector

The Energy Conservation Act of 2001, the Electricity Act of 2003,³² and a range of national electricity, tariff, and integrated energy policies provide much of the legislative and policy framework for the power sector in the country,

along with the Action Plan for Energy Efficiency.³³ It is contended that severe power shortages as well as the fact that more than 40 percent of the population still remains without access to electricity are the biggest obstacles to India's development.³⁴ To overcome these challenges, the government of India also launched a plan known as "Mission 2012: Power for All".³⁵

The Electricity Act inaugurated a liberal and progressive framework for the development of the electricity sector in the country. Its main objectives are promoting competition, protecting the interests of consumers, supplying electricity to all areas, rationalising electricity tariffs, and ensuring transparent policies regarding subsidies. It also requires State Electricity Regulatory Commissions to specify a percentage of electricity that the electricity distribution companies must procure from renewable sources. Several Commissions have already operationalised this mandate and have announced preferential prices for electricity from renewable energy. This has contributed to an increase in renewable-electricity capacity. In fact, over the past three years, about 2,000 megawatts (MW) of renewableelectricity capacity has been added in India each year, bringing the total installed renewable capacity to over 11,000 MW. Of this, a little over 7,000 MW is based on wind power. As such, India now has the fourth largest installed wind capacity in the world. Out of the total power-generation installed capacity in India of 211,766.22 MW (January, 2013), hydro-power contributes about 18.6 percent i.e., 39,416.40 MW.³⁶ The total hydro-electric power potential in the country is assessed at about 150,000 MW, equivalent to 84,000 MW at 60 percent load for to. The potential of small hydro-power projects is es man d at about 15,000 MW. Based on the recommer dations of the Committee on Hydro Power which submitted 1 report in March 1997, the Hydro Power Development Policy was formulated. The object of the Policy is prevent a decline in hydro share and to undertake pasures for the exploitation of vast hydro-electric potential in the country especially in the North and North Eastern Regions.³⁷ In 2008, to create a level playing field for private and public hydro-power producers, the New Hydro Policy (NHP) was launched,³⁸ which included provisions for project-affected persons. The NHP emphasised the potential of private producers to undertake hydro-power projects in difficult and remote areas.

The National Electricity Policy and the Tariff Policy processes have been announced under the provisions of the Electricity Act,³⁹ for the development of a power system based on optimal utilisation of resources such as coal, natural gas, hydro-power and renewable sources of energy. The Central Electricity Authority has to prepare a national electricity plan in accordance with the national electricity policy once every five years.⁴⁰ The Ministry of Power has been supporting various renewable energy programmes for the promotion of biogas plants, solar thermal systems, photovoltaic devices, biomass gasifiers, *etc.*, as well as the Integrated Rural Energy Program, for several years.

The government of India is also preparing a National Bio-Energy Mission to boost power generation from biomass (a renewable energy source) abundantly available in India.⁴¹ The mission is reportedly being launched during the Twelfth Five-Year Plan (2012–17) and will offer a policy and regulatory environment to facilitate large-scale capital investments in biomass-fired power stations.

Energy Sector

India is heavily dependent on imported fossil fuels for meeting its ever-increasing energy demand. In this regard, the Integrated Energy Policy announced by the government aims at overall development of the energy sector. ⁴² It provides for competitive procurement of power from non-conventional sources of energy such as solar. The Integrated Energy Policy identifies two options for minimising environmental impact. The first option is to impose a tax on non-renewable fuels that cause environmental damage, and give subsidies to clean energy. The second option is to set emission and energy conservation standards for equipment. The policy also mandated energy audits in large energy-consuming units in nine industrial sectors in March 2007.

In recent years, a gnificant progress has been made by India in the evelopment of hydrogen as an alternative fuel. In fac. In ia, Brazil and China are among the few developing countries that have strong research, development and demonstration programmes on hydrogen energy. The Min. 'rv of New and Renewable Energy (previously the Ministry of Non-conventional Energy Sources) has been supporting a broad-based research, development and demonstration programme on different aspects of hydrogen including its production, storage and utilisation as a fuel for transport and power generation.⁴³ It set up the National Hydrogen Energy Board (NHEB) in October 2003, and developed the National Hydrogen Energy Road Map in January 2006, to promote development of a total hydrogen energy system, including hydrogen production, storage, transport and delivery, applications, safety, codes and standards, public awareness and capacity building.44 The Ministry is also developing other forms of energy such as tidal, 45 geo-thermal, 46 chemical, 47 etc., for meeting its future challenges.

Biofuels provide a strategic advantage in the promotion of sustainable development and the supplementation of conventional energy sources to meet the rapidly increasing requirements for transportation fuels associated with high economic growth, as well as in meeting the energy needs of India's vast rural population. The Indian approach to biofuels is based solely on non-food/feedstocks raised on degraded or waste land that is not suited to agriculture, thus avoiding a possible conflict between fuel and food security. The government launched its National Biofuel Policy in 2009. The Policy endeavours to bring about optimal development and utilisation of indigenous biomass feedstocks for production of biofuels. For the production of biofuels.

The Jawaharlal Nehru National Solar Mission (JNNSM) was launched on 11 January, 2010.⁵⁰ Its ultimate objective is to make solar energy competitive with fossilbased energy options. It envisages increasing the share of solar energy in the total energy mix. The JNNSM has set the ambitious target of deploying 20,000 MW of grid-connected solar power by 2022. It is aimed at reducing

the cost of solar power generation in the country through (i) long-term policy; (ii) large-scale deployment goals; (iii) aggressive research and development (R&D); and (iv) domestic production of critical raw materials, components and products, to achieve grid-tariff parity by 2022. Another aspect of the JNNSM is to launch an R&D programme facilitating international cooperation to enable the creation of affordable, more convenient solar energy systems and to promote innovations for sustained, long-term storage and use of solar power.⁵¹

Transport Sector

Vehicles are a major source of air pollution; therefore, there is a need for tighter emission norms for various categories of vehicles. Important legislation and regulations to limit environmental pollution from vehicles include the Motor Vehicles Act, 1988,⁵² the National Auto Fuel Policy, 2003,⁵³ the Pollution under Control (PUC) Norms for use in motor vehicles,⁵⁴ and the National Urban Transport Policy, 2006.⁵⁵ The transport authorities have also laid down emission standards.

The adoption of Euro-I-III emission norms for the whole country and Euro IV norms for 13 major cities including the National Capital Region (Delhi) has improved the quality of petrol and diesel used in motorised vehicles, helping to bring down GHG emissions as well as to reduce the deleterious health effects of vehicular emissions in major cities in India.⁵⁶ Measures have also been taker to reduce the sulphur content of vehicular fuel. Ethanolblended petrol has been made mandatory in the nine sugarproducing states and the National Policy on Biofue 3 a national target of 20 percent ethanol and bidies in transportation fuel by 2017. Furthermore, ir New Delhi, the introduction of compressed natural gas (C) S) for the entire public transport fleet, as well as taxis, has been made mandatory at the direction of the Supreme Sourt of India.58 In continuation of its earlier efforts to gen the transport sector, the Government of India has launched a new mission called the National Electric Mobility Mission Plan 2020 (NEMMP 2020).⁵⁹ The principal objectives of the National Mission for Electric Mobility are national energy security, mitigation of the adverse impact of vehicles on the environment and growth of domestic manufacturing capacity. The NEMMP 2020, which was approved by the National Council for Electric Mobility (NCEM), sets the vision, lays the targets and provides the joint Governmentindustry vision for realising the huge potential that exists for a full range of efficient and environmentally friendly electric vehicle (including hybrid) technologies by 2020.

Iron and Steel Sector

In 2005, the National Steel Policy (NSP)⁶⁰ was approved by the Union Cabinet Committee on Economic Affairs. The policy envisages an overwhelming need for the country to usher in a modern and efficient steel industry of global standards catering to diversified steel demand. The focus of the policy has been to achieve global competitiveness not only in terms of cost, quality, and product mix, but also in terms of global benchmarks of efficiency and productivity. Steel production is expected to be around 100 million

tonnes per annum by 2019–20, up from the 2004–5 level of 38 million tonnes.⁶¹ According to the Indian Bureau of Mines, the country has net reserves of over 24 billion tonnes of iron ore.⁶² Given the rule that one tonne of steel requires 1.6 tonnes of iron ore, the annual need for ore (even if steel production hits the target by 2020) would be 176 million tonnes, against the existing estimated reserves of 24 billion tonnes.

In order to make various operations in the steel industry environmentally friendly, environmental audits as well as life-cycle assessments of existing steel plants (including sponge iron units) have been encouraged so that the relevant processes help in reduction of emissions and effluents, minimise and better manage solid waste generation, and improve conservation of resources such as energy and water. The steel sector has already displayed some noteworthy examples of high-level environmental performance. It could, however, still join the efforts of other industries for even better environmental performance. It is expected that secondary steel producers will be proactively essisted in shifting to processes that are more environmentally protective. A similar policy is expected to following six and natural resource industries, such as iron ore an 'coal mining, where scientific mining and mineral processing are to be encouraged.

In view of the changed economic environment, globally as well as domestically, the Ministry of Steel has initiated the process of drafting a new National Steel Policy to replace the existing National Steel Policy 2005. The Draft National Steel Policy 2012 envisages increasing capital inflow, overcoming hurdles regarding land acquisition, assuaging concerns about raw-material security, spurring efficient utilisation of raw-material resources and developing the infrastructure of the sector. One of the objectives of the new policy is to provide greater focus on R&D for developing indigenous technologies especially for finding solutions for optimum utilisation of indigenous resources and mitigating the concerns of environment and climate change.

Agriculture and Forestry Sectors

Agriculture is the core sector of the Indian economy. It provides food and livelihoods for much of the Indian population. Indian agriculture continues to be fundamentally dependent on the weather, with the recent high growth rates largely attributable to a number of successive good monsoons. Thus, agricultural productivity is sensitive to the impacts of climate change. In fact, food security is the most important issue in the country with regard to the impact of climate change, necessitating appropriate policy measures within a legal framework. The Ministry of Agriculture has formulated a National Mission for Sustainable Agriculture (NMSA) under the aegis of the NAPCC for promoting sustainable agriculture growth in the context of climate change. 65 The NMSA aims at transforming agriculture into a sustainable and climate-resilient production system by incorporating appropriate climate-change-adaptation measures into ongoing and future programmatic/schematic interventions in key dimensions namely, improved crop seeds, livestock and fish cultures, water-use efficiency, pest management, improved farm practices, nutrient management, agricultural insurance, credit support, markets, access to information and livelihood diversification.⁶⁶

As noted in the Third Assessment Report of the IPCC, recent modelling studies indicate that forest ecosystems could be seriously impacted by future climate-related changes. India's forest ecosystems are thus at risk. The principal policy for forests, as mentioned above, is the National Forest Policy. In particular, the important laws dealing with the forest sector in India include the Forest (Conservation) Act, 1980 (as amended in 1988), the Indian Forest Act, 1927, the Guidelines for diversion of forest lands for non-forest purposes under the Forest (Conservation) Act, 1980, and the Scheduled Tribe and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

Commercial Buildings

The commercial-building sector is one of the fastest growing sectors of the Indian economy, reflecting an increasing share of the services sector in the economy. As mentioned, in order to save energy in new commercial buildings, an Energy Conservation Building Code (ECBC)⁷³ was launched in May 2007. Nearly one hundred buildings are already following the Code, and compliance with it has also been incorporated into the Environmental Impact Assessment (EIA) requirements for large buildings. Similarly, the Green Rating for Integrated Habitat Assessment ("GRIHA" – a Sansl rit word meaning "abode") was introduced by the Mi. str. of New and Renewable Energy in 2001.74 GRI A is a rating tool that helps people assess the performance of Meir building against certain nationally accepted ben bmarks with the goal of minimising the building's resource consumption, waste generation, and over, 'l ecological impact. It evaluates the environmentar enformance of a building holistically over its entire life cycle. Thus it provides a definitive standard for what constitutes a "green building".75 The rating system, based on accepted energy and environmental principles, will seek to strike a balance between the established practices and emerging concepts, both national and international.

Legal Analysis

On the basis of the review of the present regulatory framework for limiting GHG emissions in India, it can be inferred that there is an urgent need to bridge some of the gaps in the policy and legal framework for the reduction of GHG emissions.

Gaps in the Overarching Policies

The NEP⁷⁶ does not give due consideration to the sources of GHG emissions in various sectors. It does not prioritise, for obvious reasons, the need to reduce GHG emissions, which are considered to be relatively minimal (3 percent of the global GHG emissions in *per-capita* terms, 23 percent of the global average) and spread across several sectors of the Indian economy. Ostensibly, the NEP seems to presume that India's policies

for sustainable development will cumulatively result in a relatively GHG-benign growth path. The NEP could evolve to take cognisance of these risks and opportunities in various sectors of the economy, and still maintain its focus on adaptation measures for climate change impacts. It currently appears that, as applied to GHGs, the Policy would essentially be guided by a multilateral approach as well as the principle of "differentiated responsibility" in terms of standing up to the challenge of global climate change, but more assertive measures could build upon the current concerted approach wherein Indian industry is already being encouraged to participate in the CDM. The Policy has an embedded provision for a triennial review, through which it is regularly fine-tuned according to changing needs.

The NAPCC 2008 does not commit India to any GHG emissions reduction targets or to a time-frame to undertake the required action. The plan does not give any idea about the financial costs required to achieve these goals. Moreover, it does not provide a mechanism to evaluate the efforts to ochie e the goal or propose the relevant regulatory and institutional framework. It therefore still needs to be fin ly integrated with overall environmentand dev. opn ent-related policy frameworks, to spell out the letails of its "eight missions", the estimated funding required and an intra-ministerial mechanism that could be assigned to realise these broad objectives. Cumulatively, byer a period of years, these missions could result in a oradual reduction of GHG emissions and boost a strategic shift toward enhanced fuel efficiency and increased reliance on renewable energy.

The current legal and institutional framework for regulating climate change is fragmented. There are several incoherent laws and implementing agencies for environmental protection in general, including regulation related to GHG emissions. The era of sectoral policies is now paving the way for overarching policies that could help in attaining cross-sectoral goals. The NEP and NAPCC, for example, set broad policy goals. The efficacy of the NEP could be measured from a range of actions that the MoEF takes in the field in terms of various laws, delegated legislations (such as new announcements on the "coastal management zone", the "regulation of wetlands" or "environmental impact assessment") or India's position in global negotiating forums (such as the UNFCCC negotiations). In a sense, the policy tools chart a course of action for the country to pursue on the basis of priorities and political clearance accorded to them.

Gaps in the Regulatory Framework Comprehensive GHG Law

The present regulations for GHGs are scattered throughout a number of laws. The subject matter and objectives of these laws are incidental in reducing GHG emissions. This could, in due course, lead to a comprehensive legislation with the primary aim of regulating and limiting GHG emissions in various sectors of the economy. With the NEP and NAPCC firmly in place, the stage is probably set for putting a special legislation in place. In view of the nature of the issue at stake, its

cross-sectoral implications and India's developmental compulsions, it seems that such legislation could, at best, provide a framework, helping to better coordinate as well as to institutionalise a delivery system for attainment of the objectives.

Comprehensive GHG Regulatory Institutions

One of the limitations of the GHG-related regulatory framework in India is the absence of an effective institutional framework to regulate GHG emissions. In this respect, the general institutional framework for pollution control in India includes the MoEF, the Central Pollution Control Board (CPCB) and the State Pollution Control Boards (SPCBs). Cumulatively, this institutional framework is responsible for administering and supervising GHG-related regulations in India. In view of the growing complexities of economic development and the technical issues involved, it seems necessary to institutionalise a specialised supervisory and regulatory body for regulating GHG emissions including energy emissions in India in an efficient and coherent manner. This regulatory body would have overall supervisory power over various sources of GHG emissions in India. It could be entrusted with powers to decide on dispute settlement, as well.

More Robust Sectoral Policies

GHG emissions are not related to any specific human activity. In fact, the sources of GHG emissions are spread across almost all human economic activities including industrial production, power generation, transportation, energy consumption and agriculture. GHG emissions directly linked to fossil fuel consumption in various sectors of the Indian economy. There is thus a nee to a velop sector-specific climate policies, measures and a gulations that could mitigate GHG emissions as well as being integrated with the objective of sustainal development of the economy. In this context, several, reasures taken as a result of judicial interventions that addressed hazardous and polluting industries including the transport sector (through directions on introduction of a specific mode of fuel, making available lead-free fuel, phase-out of old vehicles, etc.) provide examples of measures that could be taken through regulatory tools.

For instance, in the transport sector, apart from strict emission norms for new vehicles, attention needs to be paid to regulate maintenance and inspection of vehicles to ensure sustained emission performance. There could also be some innovative policy approach as regards placing ceilings and production quotas for manufacturers so as not to worsen air pollution levels as well as precarious traffic conditions (due to too many vehicles on the roads) in most of the big Indian cities.

In the forestry sector, modelling studies indicate that forest ecosystems could be seriously impacted by future climate change. In the specific case of India, the forested grids in India are likely to experience a shift in forest types. Thus, in view of the projected trends, it seems necessary to factor in future potential impacts of climate change in the forestry sector's long-term planning process.⁷⁷ It is important to develop and implement adaptation strategies

for forest conservation and the livelihoods of forestdependent people.

Indicative Targets and Time-frames

The NAPCC sets outs eight core "national missions", to be integrated with the objective of sustainable development, as the national strategy to combat climate change in the country. This strategy generally emphasises cutting down fossil fuel use, but not limiting the GHG emissions from various sources such as factories or vehicles. In other words, there are no targets or time-frames for mitigating GHG emissions from these sources. Measures are needed to directly regulate the sources of GHG emissions. The fact that climate change has drawn attention at the highest political level itself signifies willingness to address the issue squarely. There appears to be an underlying realisation that India could be better off without emulating the Western model of high-GHG-intensity growth. This self-realisation itself could be regarded as the beginning of a process to streamline domestic GHG emissions in the coming years. It is significant that i. Action Plan does provide the "guiding principles that could gradually become a working basis for ensuring eater energy efficiency, a shift to renewable energy and a less intensive GHG emission path. In this respect, possible targets or time-frames could provide some incicators of progress.

Market-based Schemes

In light of the emerging trend in regulatory schemes, there is a need to shift from a command-and-control regulatory system to a more market-based compliance system. Some trends in this respect are visible in the several new notifications that have been brought out in recent years. These include Environmental Impact Assessment,⁷⁸ Environmental Auditing,⁷⁹ and Eco-mark.⁸⁰ The NEP itself provides indications in this respect. For instance, it proposes to encourage industry associations to promote Environment Management Systems (such as ISO 14000 certification). In one of its "principles", the NEP explicitly emphasises that in "various public actions for environmental conservation, economic efficiency would be sought to be realized". This could involve working towards realisation of the "polluter pays" principle as well as "efficiency of resource use". Furthermore, another indication of "balancing scales" can be seen in an innovative concept such as "entities with incomparable values", which could act as a guide to assessing significant risks to human health, life, and environmental life-support systems as well as some unique natural and man-made entities by laying down a new threshold wherein a "conventional economic cost-benefit calculus would not, accordingly, apply in their case".81

Enforcement and Implementation of Sectoral Regulations

Multi-sectoral

Unregulated emissions from sources including factories and vehicles are regarded as the main reasons for pollution in urban areas. The Pollution Control Boards have laid down a framework of command-and-control regulations for emissions from factories in some important sectors –

Framework Present status Gaps **Needed improvements** General legal Scattered laws and regulations Comprehensive and coherent EPA, Air Act etc. Framework legislation National Emphasis on the need for Sources of the GHG emissions Comprehensive environment Environment adaptation to climate change. in various sectors are not given policy on the need to reduce **Policy** and the scope for incorporating due consideration. It does not GHG emissions from its these in relevant programmes address the need to reduce various sources scattered all GHG emissions from its various with the over-riding priority over the various sectors of of the right to development. sources scattered all over the the Indian economy Inclusion of environmental various sectors of the Indian considerations in sectoral economy on the ground that policy making. Emphasis on India's existing policies for the need to institutionalise sustainable development result in mechanisms in order to a relatively GHG-benign growth operationalise environmental path. concerns at all levels of government Institutional Specific GHG supervise y and CPCB, SPCB, MoEF GHG supervisory and framework regulatory body regulatory body The National Green Tribunal Lack of in-house expectise on Need for appointment of **Dispute** GHG-related dispuss, narrow settlement (NGT) judicial and expert members scope of the 1 GT Act, 2010 with with background in climate Air Pollution and Water Pollution change and GHG regulation Act, no novative provision on dispute. oncerning GHG Do not cover all sources of GHG Sectoral Some industry-specific Sector-specific climate m. ions across various sectors regulations regulations regulations integrated with

Table 2. Gaps in the regulatory framework for GHG emissions

rules that are still not seeing proper compliance due to lax implementation of standards, the lack of in. astructure for regular monitoring and enforcement, and the non-deterrent nature of penalties. Thus, there is a need for stringent enforcement mechanisms to avoid non-compliance with the regulations.

An institutional framework for enforcing these policies and measures is very important. In this context, the institutional framework for regulating GHG emissions is made up of the MoEF, its National Clean Development Mechanism Authority (NCDMA), the CPCB and the SPCBs. Recent initiatives included setting up the National Green Tribunal (NGT) in 2010.82 The NGT Act was drafted and introduced in Parliament in response to the recommendations of the Supreme Court and the Law Commission, especially in view of the large number of outstanding environment-related cases throughout India. In addition to the principal bench in New Delhi, the new tribunal will have "circuit benches" across the country to try all matters related to and arising out of environmental issues. The Preamble to the Act sets out objectives for the effective and expeditious disposal of cases relating to environment protection and conservation of forests and other natural resources. Moreover, it seeks to provide for enforcement of any legal right relating to the environment, giving relief and compensation for damages to persons, property and the environment.

The MoEF is the nodal agency for climate change issues in India. For a time following UNFCCC CoP-8 (New Delhi, 2002), it had an in-house Consultative Group on Climate Change (CGCC) comprised of officials and outside experts. In accordance with the Marrakesh Accords, India designated a national authority within the MoEF in December 2003 that framed guidelines for CDM projects in India. The NCDMA is a single-window evaluation and clearance authority for CDM projects in the country. It is also authorised to impose certain additional requirements to ensure that CDM project proposals meet the national sustainable development priorities and comply with the legal framework in India so as to ensure that the projects are compatible with local priorities and that stakeholders have been duly consulted.

overall regulations

The CPCB and SPCBs were established by the Air Act for the prevention and control of air pollution. The main functions of the CPCB are to improve the quality of air and to prevent, control or abate air pollution in the country. As such, it has been playing a central role in the country by generating relevant data, providing scientific information, rendering technical inputs for formation of national policies and programmes, training and developing manpower, and organising activities for promoting awareness at different levels of the government and public at large. In addition, the

CPCB is empowered to lay down standards for air quality. The SPCBs are similarly empowered, in consultation with the CPCB, to lay down standards for emission of any air pollutant into the atmosphere from any source.

The existence of various institutions, however, does not guarantee adequate capacity for implementation. A recent assessment found that, "[t]he lack of civil administrative authority (particularly, to impose administrative fines) limits the effectiveness of PCBs' enforcement efforts and leads to over-reliance on the judiciary for enforcement" and that "[t]he lack of nationwide implementing guidance on permitting and compliance monitoring from the CPCB on such issues as definition of compliance, consent conditions, reporting format, sampling requirements, as well as interpretation of different regulations significantly impairs the quality of SPCB implementing programs and limits the exchange of experiences between the states". 83

Power Sector

Power sector reforms have now been added to the political agenda. The Union Government itself has been making well calibrated noises that could deliver messages to the state governments. There are several state governments that have already given effect to many vital reforms that have been pending for a long time, resulting in a reduction in power thefts, more rationalisation of power tariffs, installation of efficient meters and crackdowns on violators. These efforts have delivered good result in those states. Still, there are some other states in which power sector reforms have been subject to populish measures resulting in huge losses to the excheque. There is more efficient coordination and rationalisation in unage of electricity through "grid management". Many of the electricity boards are gearing up for a difficult basele ahead.

Energy Sector

The energy sector needs good coo, ination efforts in view of the role of multiple actors. An agency like the Bureau of Energy Efficiency (BEE) could play a leading role in meeting the challenge. In fact "energy efficiency" has now been elevated to one of the eight missions under the 2008 NAPCC. As such, it could gain much legitimacy and scrutiny as a cross-sectoral priority. It seems energy efficiency could emerge as a central pillar in India's efforts to reduce GHG emissions. A series of measures have now been put into place to ensure conservation of energy. These include reduction of transmission losses, installation of efficient electrical equipment, introduction of compact fluorescent lamps and other measures to educate and make people aware of energy conservation.

Transport Sector

The transport sector is awaiting a major overhaul in the coming years, in view of the serious challenge that vehicular emissions pose in most urban areas of India. In this context, the National Highways Authority of India has an important role to play in regulating, modernising and maintaining the highway network in India. The highway network is rapidly expanding to include multiple lanes for major highways, and the construction of new expressways and mass rapid transit systems. The phasing-out of steam engines from the railway network and introduction of electric/diesel engines have revolutionised the rail system. Many cities have started emulating the very successful Delhi Metro experiment. Similarly, there have been expansions of the major ports and emergence of new ports to facilitate the increase in freight traffic. The transport sector could witness still more revolutionary change in the coming years.

In addition, in recent years, the judiciary has played a crucial role in limiting vehicular emissions, particularly in cities (as presented in Table 3). These interventions came from concerned citizens and activist NGOs that forced the government to give effect to its constitutional and statutory obligation. In this regard, a number of judgments relating to stringent vehicle emission norms, fuel quality, introduction of cleaner fuels, and phasing-out of older vehicles have provided a great deal of momentum to the efforts for the improvement of air quality and the reduction of GHG emissions. In this respect, the courts have also elabor, ted on concepts such as sustainable developm n, the "polluter pays" principle and the precaute ar principle with regard to environmental protection through the judicial process. They have recognised the citizen's right to a clean environment as a emponent of the right to life and liberty.84 Through a number of judgments, India's highest Court has directed the pollution control authorities to execute the standards set by various committees and boards. In the famous CNG case, also known as the "vehicular pollution case" (M.C. Mehta vs Union of India, Writ Petition (Civil) No.13029/1985), the Supreme Court ordered that all new diesel vehicles registered after June 1999 in Delhi should abide by Euro-I emission norms, and vehicles registered after April 2000 should abide by Euro-II emission norms. Further, it ordered that the sulphur content in diesel and petrol should be reduced. The Court also banned from Delhi roads all commercial vehicles that are 15 years old or older.

Iron and Steel Sector

The iron and steel sector is witnessing profound changes. The arrival of the private sector as a major competitor to public enterprises has fuelled growth. There has been more public scrutiny of the efficiency, safety record, and labour standards of this sector. The question of setting up massive steel plants (such as POSCO) in states such as Orissa has invited public debate on many issues of concern. This has galvanised the Ministry of Steel and Mines to become increasingly transparent in its decision-making processes and has also encouraged disinvestment in some public enterprises.

Agriculture and Forestry Sectors

Agriculture and forestry have also witnessed upheavals in recent years especially due to growing incidents of farmer suicides due to distress in the agriculture sector. Several factors such as lack of irrigation, lack of availability of power, failure of crops due to the vagaries of nature, and the iron grip of moneylenders can be held responsible

Case	Issue	Court decision/direction
M.C. Mehta vs Union of	Air pollution in Delhi caused	Directed all commercial vehicles operating in
India ("CNG Case"), AIR	by vehicular emissions violates	Delhi to switch to CNG fuel mode
2001 SC 1948	right to life under Article 21	
Union Carbide	Damages were sought on behalf	The Union Carbide Corporation was asked
Corporation vs	of victims of Bhopal gas leak	to pay a sum of US\$ 470 million in full
Union of India	disaster	settlement of all claims, rights and liabilities
(Bhopal − I),		related to and arising out of the Bhopal gas
AIR 1990 SC 273		disaster
M.C. Mehta and others	Closure of a chlorine plant	Permitted to re-start the plant subject to
vs Shriram Food and	following the leakage of oleum	weekly inspection, periodic health checks for
Fertilizer Industries and	gas	the workers, and recommended the setting up
Union of India (Oleum Gas		of an Environmental Court
Leak Case), AIR 1987 SC		
965		
Chandigarh Administration	Absence of proper control	Direction to issue "authorization stickers"
& Others vs Namit Kumar	of traffic and air pollution	to be lightlayed on the windscreens of the
and Others, CWP No.	resulting in accidents	vehicles of dignitaries permitted to use red
7639/1995		ligh .

Table 3. Important judgments of higher courts concerning abatement of air pollution

for this. The issue received attention at the highest level with the Prime Minister announcing a package of more than INR 70,000/-crores⁸⁵ to rescue farmers from debt, as well as a waiver of farm loans by the banks or repayments of such loans by the banks to the moneylenders. The agriculture sector's loss of competitiveness was squarely addressed by the National Commission on Farrier. The Union Government has sought to give effect to a recommendations of this Commission.

The forestry sector has been receiving due attaction in view of the massive drive for afforestation as well as the desire to attain the goal of 33 percent of the country's land area under forest cover. The issues of augorating capacity of the forestry managers and those who guard the national parks and sanctuaries have received attention. Attempts to increase this capacity have focused on tightening up major legislation such as the Wildlife Protection Act and adopting the NEP. Efforts to boost the morale of the forestry cadre now receive greater focused attention at primary institutions, such as the Forest Research Institute and the Indira Gandhi National Forest Academy (both at Dehradun). At the top level, the post of Director-General Forests has been upgraded to "Special Secretary" in the Union Ministry of Environment & Forests.

India continues to face significant challenges in controlling illegal logging and trade in illegally harvested timber products. For example, there has been substantial removal of sandalwood (red sanders) logs which are valued for their use in furniture, from some areas of the country. Under India's Foreign Trade Policy, exports of sandalwood are prohibited and the species is also protected under the Convention on International Trade in Endangered Species (CITES). A recent intervention by India's Directorate of Revenue Intelligence resulted in the seizure of 11,000 tonnes of sandalwood logs, destined to be shipped from the country under falsified import and export permits.

Conclusion

the basis of this review of existing policy, legal and institutional frameworks with climate co-benefits and on the analysis of the level of implementation, India is hown to be moderately advanced in identifying strategies to mitigate GHG emissions, improve the country's energy security, and adapt to the adverse impacts of climate change. India could consider the adoption of a comprehensive national environmental policy addressing the issue of limiting GHG emissions from major sources across the economy. Sectoral regulations could contribute to enhanced energy efficiency and improved air quality, as well as to GHG emission reductions. Furthermore, facilitating improvements in industrial energy efficiency, particularly for energy-intensive sectors such as cement and steel, is likely to have broader economic benefits to these sectors.

Similarly, India could adopt comprehensive and coherent legislation addressing the specific issue of GHG emissions. This legislation could include some indicative targets and time-frames, explicitly keeping socio-economic and developmental requirements in view. To implement the GHG regulations in an efficient manner, there is a need to strengthen the present institutional infrastructure. In this regard, an independent and autonomous GHG regulatory board could be needed at both the national and state levels. The GHG regulatory body could be empowered to enforce and implement the rules governing GHG emissions in the country.

Notwithstanding problems and gaps identified above, there are significant opportunities to improve implementation of, and advance compliance with, existing laws with climate co-benefits. It could be possible to develop a new institutional and legal framework that seeks to regulate already existing GHG reduction efforts in different sectors of the Indian economy. As proposed

in the NAPCC, India's path to controlling GHG emissions must emphasise energy efficiency and the adoption of renewable energy sources. India can help capture the value of GHG emission reductions by strengthening its capacity to implement environmental law, particularly at the sub-national level – adopting energy policies that further encourage distributed generation, capturing methane, controlling ozone-depleting substances (ODSs), promoting utility and industrial energy efficiency, and wisely managing the agricultural and forestry sectors.

The 2006 Rapid Assessment of Environmental Compliance and Enforcement in India presented ten recommendations including developing "comprehensive standard compliance monitoring and enforcement policies and procedures", establishing "a methodology and mechanism for the states to identify priority targets that would take into account local needs and practices", and creating "performance management systems and nationwide performance indicators". Prioritising the implementation of these recommendations, along with related capacity building and training on the core principles and good practices of environmental compliance and enforcement, particularly at the SPCB level, is critical to the successful management of India's environmental legal structure, which is fairly comprehensive, particularly in terms of energy conservation.

Extensive opportunities exist in India to introduce regulations that will drive progress towards greater energy efficiency (e.g., subsidies for power meters, subsidies for the replacement of inefficient equipment) and that will establish market mechanisms to encourage the application of new technologies at lower cost. India could product a comprehensive assessment of existing policies and their relative effectiveness to guide the design and development of future policy programmes.

Driven by federal requirements including the 2003 Electricity Act, some of India's states we implemented renewable portfolio standards (production quotas) and feed-in tariffs (pricing mandates) to encourage the development of a profitable and sustainable renewable energy industry. India has also been successful in attracting energy projects under the CDM, hosting many small-scale grid-connected renewable electricity generation projects. However, significant barriers prevent the country from fully benefiting from its renewable capacity, including inconsistent application of rules related to grid access, the lack of a pricing structure to encourage sale of surplus renewable electricity from small-scale generators, and high import duties on environmental technologies. Improving the implementation of power sector regulations could greatly enhance renewable generation capacity in India.

Many ODSs have high GHG potential, and the full implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer is essential to controlling GHG emissions from these sources. India is internationally recognised for its work implementing the Montreal Protocol, and reached the important 85 percent reduction in CFC and CTC production and consumption targets during 2005–2007. Although India prioritised the goal of controlling illegal trade in ODSs, including extensive

capacity building among customs officials, the country continues to be a trade route. In this context, a series of measures to combat illegal trade could include international enforcement cooperation (e.g., through the Regional Intelligence Liaison Office); awareness raising among customs officers, enforcement officers, port officials, and the judiciary; publication of highprofile cases; and the establishment of penalties that are significant enough to ensure a deterrent effect. India has also formulated a 1997 coal-bed methane policy and launched the commercial sale of natural gas from coal beds in 2007. As coal-bed methane grows in importance as an energy source, India could ensure that adequate environmental protections are in place, including EIAs and air and water quality standards. It could continue to explore extraction and distribution methodologies for capturing gas from coal mines, such as underground coal gasification (UCG), which would have greater environmental co-benefits than coal-bed methane.

Implementing such steps would duly tighten up the existing policy, a gal and institutional framework, and firmly place India on the already stated trajectory towards GHG encircular in mitigation. If quantified, cumulative mitigation of GHG emissions without any legal obligation whatsoever under the UNFCCC, would provide the best example of the efficacy of domestic actions in a major developing country such as India. It would also provide a lesson for many of the developed countries who have reneged from legally binding commitments under the Kyoto Protocol and have tried their best, in the post-2012 period, to undermine the architecture of differentiated responsibility laid down under the UNFCCC.

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Notes

- 1 The General Assembly Resolution 43/53 of 6 December 1988 on "Protection of global climate for present and future generations of mankind" emphatically proclaimed that "climate change is a common concern of mankind, since climate is an essential condition which sustains life on earth"; see http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/43/53&Lang=E&Area=RESOLUTION.
- 2 Article 2 of the 1992 UN Framework Convention on Climate Change (UNFCCC) states the objective in this formulation: "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system"; see http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng. pdf, at 9.
- 3 For status of the UNFCCC, with 195 parties, see http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php. For status of the Kyoto Protocol, with 192 parties, see http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php.
- [A gigagram is 1000 million grams or approximately 1100 tonnes. Ed.]
- 5 ADB-GEF-UNDP. 1998. Asia Least-Cost Greenhouse Gas Abatement Strategy: India. Manila: Asian Development Bank.
- 6 See World Resources Institute's Climate Data Explorer, at http://cait2.wri.org.
 7 Indian Network for Climate Change Assessment (INCCA) is a network-based programme that brings together over 120 institutions and over 220 scientists from across the country to undertake scientific assessments of different aspects of climate change for the Ministry of Environment and Forests (MoEF), Government of India.
- 8 INCCA. 2010. *India: Greenhouse Gas Emissions 2007*. New Delhi: MoEF. As per the data given in the report, India's *per-capita* CO₂-equivalent emissions were 1.5 tonnes/*capita* in 2007; available at http://moef.nic.in/downloads/public-information/Report_INCCA.pdf.

- 9 Garg, A., Bhattacharya, S., Shukla, P.R. and Dadhwal, V.K. 2001. "Regional and Sectoral Assessment of Greenhouse Gas Emissions in India". *Atmospheric Environment* 35(15): 2679–95.
- 10 Supra, note 2, Preamble and Article 3(1).
- 11 *Ibid.*, Preamble, para. 3: "Noting that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs" (emphasis added).
- 12 INCCA. 2010. "Climate Change and India: A 4x4 Assessment a Sectoral and Regional Analysis for 2030s". INCCA Report #2. New Delhi: MoEF. It examines the impact of climate change on four key sectors of the Indian economy, namely, agriculture, water, natural ecosystems & biodiversity and health, in four climatesensitive regions of India, namely, the Himalayan region, the Western Ghats, the Coastal Area and the North-East Region. Salient Findings of the 4x4 Assessment are available at http://moef.nic.in/downloads/public-information/Innca-press-release.pdf.
- 13 Ibid., Press Note, at http://envfor.nic.in/division/indian-network-climate-change-assessment.
- 14 Articles 48A and 51A(g) of the Indian Constitution deal with the protection and improvement of the environment. Article 48A provides: "[T]he State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country". Article 48A is included under Part IV of the Indian Constitution, which sets out the Directive Principles of State Policy. Per Article 37, those Principles "shall not be enforceable by any court", yet they are "fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws". Article 51A(g) imposes a duty on every citizen of India "to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures". Both Articles 48A and 51A were inserted in the Constitution by the Constitution (Forty-second Amendment) Act, 1976.
- 15 This expert group submitted its interim report in May 2011. The group studied India's GHG emission structure and its energy needs for low-carbon inclusive growth. In addition, its report provides for specific sectoral policies in this regard. The Expert Group emphasised action mainly in the power, transport, industry, building and forestry sectors. The final report of the Expert Group was to be submitted in time for the Twelfth Five-Year Plan. The interim report is available at http://planningcommission.nic.in/reports/genrep/Inter_Exp.pdf.
- 16 See *Eleventh Five-Year Plan*, "Chapter 9: Environment and Climate Chan e". 2007; available at http://planningcommission.nic.in/plans/planrel/fiveyr/11th v1/11v1_ch9.pdf.
- 17 See Faster, Sustainable and More Inclusive Growth: An Approach to et Twelfth Five Year Plan", 2011, "Chapter 5: Sustainable Management of atural Resources"; available at http://planningcommission.nic.in/plans/r[a. 1/12appdrft/appraoch 12plan.pdf.
- 18 See http://planningcommission.gov.in/aboutus/com/sittee/strgrp12/st_enf. pdf.
- 19 Available at http://planningcommission.gov.in/ab_vtus/committee/wrkgrp12/enf/wgsub_climate.pdf.
- 20 The basic objectives of the National Forest Policy, 1988 are as follows: (i) Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represents the remarkable biological diversity and genetic resources of the country. (ii) Checking soil erosion and denudation in the catchment areas of rivers, lakes, and reservoirs in the interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs. Also checking the extension of sand dunes. (iii) Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands. (iv) Meeting the requirements of fuel-wood, fodder, minor forest produce and small timber of the rural and tribal population. (v) Increasing the productivity of forests to meet essential national needs. (vi) Encouraging efficient utilisation of forest produce and maximising substitution of the wood. (vii) Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimise pressure on existing forests.
- $21 \quad A vailable \ at \ http://envfor.nic.in/sites/default/files/introduction-nep 2006e.pdf.$
- 22 Ibid., at 42.
- 23 Ibid., at 43.
- 24 See http://www.pmindia.nic.in/Pg01-52.pdf.
- 25 After placing it in the public domain on 23 May 2010, and conducting seven extensive regional consultations, personally attended by then-Minister for Environment & Forests Jairam Ramesh, in Gawahati, Dehradun, Pune, Bhopal, Jaipur, Vizag and Mysore (10 June–15 July 2010), the final document for the National Mission for a Green India was submitted to the Prime Minister's Council on Climate Change on 22 February 2011. To view the full document see http://moef.nic.in/downloads/public-information/GIM%20presentation%20Feb%2022%202011.pdf. 26 See Indian Prime Minister's Speech on the Release of the Climate Change Action Plan at http://www.climate-leaders.org/wp-content/uploads/primeministersspeech.pdf, 30 June 2008, New Delhi, at 3. See also *supra*, note 24. 27 Supra, note 9.

- The Air Act is available at http://www.moef.nic.in/legis/air/air1.html.
- 29 See "SC issues notice to Centre on enforcing EURO V emission norms", *The Economic Times*, 1 July 2013; available at http://articles.economictimes.indiatimes.com/2013-07-01/news/40307880_1_emission-standards-air-pollution-particles.
- 30 See http://www.powermin.nic.in/acts_notification/energy_conservation_act/index.htm.
- 31 MoEF. 2010. "India: Taking on Climate Change: Post-Copenhagen Domestic Actions"; available at http://moef.nic.in/downloads/public-information/India%20 Taking%20on%20Climate%20Change.pdf.
- 32 See http://www.powermin.nic.in/acts_notification/electricity_act2003/ preliminary.htm.
- 33 See http://www.powermin.nic.in/acts_notification/energy_conservation_act/pdf/The_Action_Plan_for_energy_Efficiency.pdf.
- World Bank. 2012. "India Hydropower Development". Available at http://www.worldbank.org/en/news/feature/2012/03/23/india-hydropower-development.
 See http://www.powermin.nic.in/indian_electricity_scenario/power_for_all_
- 36 For more details see http://www.powermin.nic.in/indian_electricity_scenario/ introduction.htm.

target.htm.

- 37 For more details see http://powermin.nic.in/acts_notification/Hydro_Power_Development.htm.
- 38 For more details see http://powermin.nic.in/whats_new/pdf/new_hydro_policy.pdf.
- 39 In compliance with Section 3 of the Electricity Act (2003), the Central Government announced the National Electricity Policy on 12 February 2005 and the Tariff Policy on 6 January 2006. The National Electricity Policy can be accessed at http://www.powernma... "n/whats new/national_electricity_policy.htm.
- 40 The CEA is a catutory Body constituted under the erstwhile Electricity (Supply) Act, 19-, cater replaced by the Electricity Act 2003, where similar provisions exist the core of the CEA is an "Attached Office" of the Ministry of Power. The CEA is responsible for the technical coordination and supervision of programmes. It is also entrusted with a number of statutory functions; see http://www.jea.nic.jn/cea.html.
- 41 Add ls see http://www.simplydecoded.com/2013/02/24/a-ninth-mission-national-bio-energy-mission/.
- 42 See http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf.
- See http://mnre.gov.in/schemes/new-technologies/hydrogen-energy/
- The National Hydrogen Energy Road Map has projected that, by 2020, one million hydrogen-fuelled vehicles will be on the roads and 1000 MW aggregate hydrogen-based power-generating capacity will be set up in the country. See http://mnre.gov.in/file-manager/UserFiles/abridged-nherm.pdf.
- 45 India has a long coastline with estuaries and gulfs where tides are strong enough to move turbines for electrical power generation. The Gulf of Cambay and the Gulf of Kachchh in Gujarat on the west coast have a maximum tidal range of 11m and 8m with average tidal range of 6.77m and 5.23m, respectively. The maximum range of the Ganges Delta in the Sundarbans in the state of West Bengal is approximately 5m with an average tidal range of 2.97m. Their combined identified economic power potential is in the order of 8300 MW, with about 7000 MW in the Gulf of Cambay, about 1200 MW in the Gulf of Kachchh and about 100 MW in the Ganges Delta. See http://mnre.gov.in/schemes/new-technologies/tidal-energy/.
- 46 See http://mnre.gov.in/schemes/new-technologies/geothermal/.
- 47 See http://mnre.gov.in/schemes/new-technologies/chemical-energy/.
- 48 See, Press Release, "National Policy on Bio-fuels Announced", 24 December, 2009; available at http://pib.nic.in/newsite/erelease.aspx?relid=56469.
- 49 See http://mnre.gov.in/file-manager/UserFiles/biofuel policy.pdf.
- The JNNSM is a major initiative of the Government of India and the various state governments to promote ecologically sustainable growth while addressing India's energy security challenge. It was approved on 11 January 2010 and aims to establish India as a global leader in solar energy, by creating the policy conditions for its diffusion across the country as quickly as possible. It will also constitute a major contribution by India to the global effort to meet the challenges of climate change. The NAPCC has identified development of solar energy technologies in the country as a National Mission, to focus immediately on setting up an enabling environment for solar technology penetration in the country both at a centralised and decentralised level. The first phase (up to 2012-2013) will focus on capturing the low-hanging options in solar thermal; on promoting off-grid systems to serve populations without access to commercial energy; and on modest capacity addition in grid-based systems. In the second phase, after taking into account the experience of the initial years, the Mission aims to create conditions for scaled-up and competitive solar energy penetration in the country. In order to do so, the Mission has the following targets: (i) To create an enabling policy framework for the deployment of 20,000 MW of solar power by 2022; (ii) To ramp up capacity of grid-connected solar power generation to 1000 MW within three years - by 2013 (an additional 3000 MW by 2017) through the mandatory use of the renewable purchase obligation by utilities backed with a preferential tariff (this capacity can be more than doubled - reaching 10,000 MW installed power by 2017 or more, based on the enhanced and enabled international finance and technology transfer. The ambitious target for 2022 of 20,000 MW or more, will be dependent on the "learning" of the first two phases which, if successful, could lead to conditions of grid-competitive solar

power. The transition could be appropriately scaled up, based on availability of international finance and technology); (iii) To create favourable conditions for solar manufacturing capability, particularly solar thermal for indigenous production and market leadership; (iv) To promote programmes for off-grid applications, reaching 1000 MW by 2017 and 2000 MW by 2022; (v) To achieve 15 million m² of solar thermal collector area by 2017 and 20 million by 2022; and (vi) To deploy solar lighting systems for rural areas by 2022. See http://www.mnre.gov.in/file-manager/ UserFiles/mission document JNNSM.pdf.

- Ibid.
- 52 For an introduction see http://morth.nic.in/showfile.asp?lid=672.
- 53 For salient features of the policy, see http://pib.nic.in/archieve/lreleng/lyr2003/ roct2003/06102003/r0610200313.html.
- See Gazette Notification No. G.S.R. 111(E) dated 10.2.2004. These norms came into effect on 1 October 2004; for an update on vehicle emissions norms, see http://morth.nic.in/printcont2.asp?lid=58&sublinkid=29.
- See http://urbanindia.nic.in/policies/TransportPolicy.pdf.
- 56 On 29 April 1999, the Supreme Court of India ruled that all vehicles in India have to meet Euro-I norms by 1 June 1999 and Euro-II will be mandatory in the National Capital Region (Delhi) by April 2000. Car makers were not prepared for this transition and, in a subsequent judgment, the implementation date for Euro-II was not enforced. Later, the National Auto Fuel Policy, which was announced on 6 October 2003, envisaged a phased programme for introducing Euro-II through Euro-IV emission and fuel regulations by April 2010. For more detail on vehicular emission norms, see http://morth.nic.in/index2.asp?slid=58&sublinkid=29&lang=1.
- Supra note 48
- 58 See M.C. Mehta vs Union of India ("CNG Case"), AIR 2001 SC 1948.
- The National Electric Mobility Mission Plan 2020 was launched by Indian Prime Minister Manmohan Singh on 9 January 2013. In his address, he underscored the need to adopt new technology like electric vehicle technologies, including hybrid vehicles. He emphasised that "these technologies are not only more efficient but they are also cleaner. They have the potential of contributing substantially to our efforts for mitigating the adverse impact of economic development on the environment. Electric and hybrid vehicles therefore, have a significantly lower level of emissions, including carbon-dioxide emissions, which is one of the major contributors to global warming and to processes of climate change". The PM's address is available at http:// pmindia.gov.in/speech-details.php?nodeid=1271. See NEMMP at http://dhi.nic.in/
- See http://steel.nic.in/nspolicy2005.pdf.
- See Chapter 1, at http://ibm.nic.in/ch1.pdf.

- See http://steel.gov.in/06112012%20National%20Steel%20Policy%20Draft.pdf.
- 64
- 65 See http://www.moef.nic.in/downloads/others/Mission-SAPCC-NMA.pdf.
- See, Press Release, "NMSA for Promoting Sustainable Agricultural Growth in the Context of Climate Change", 15 March, 2013, at http://pib.nic.in/newsite/ erelease aspx?relid=93761
- IPCC. 2001. "Summary for Policy Makers and Technical Summary of the Working Group I Report". Climate Change 2001: The Scientific Basis. Cambridge: Cambridge University Press.
- See http://envfor.nic.in/sites/default/files/introduction-nfp.pdf.
- See http://envfor.nic.in/legis/forest/forest2.html.
- 70 See http://envfor.nic.in/legis/forest/forest4.html.
- 71 See http://www.envfor.nic.in/legis/forest/forguide.pdf.
- 72 See http://www.ektaparishad.com/Portals/0/Forest%20Rights%20Act.pdf.
- See http://www.sgc-india.in/pdf/ECBC final May 2007.pdf.
- 74 More details available at http://www.grihaindia.org/index.php?option=com_ content&view=article&id=73.
- 75
- 76 Supra, note 21.
- 77 Ravindranath, N.H., Joshi, N.V., Sukumar, R. and Saxena, A. 2006. "Impact of Climate Change on Forests in India". Current Science 90(3): 354-361.
- See http://envfor.nic.in/legis/eia/so1533.pdf.
- See http://www.icisa.cag.gov.in/BackGroundEnvironmentAuditing/ Environment%20auditing%20India CAG.pdf.
- See Notification G.S.R. 85 (E) of 20 February 1991 on *Scheme on Labelling* of Environment Frier dly Products (ECOMARK); available at http://www.moef.nic. in/legis/others/ecomark.
- Supra, note 2), Principle vii, at 12. See The Note on al Green Tribunal Act, No. 19 of 2010, at http://moef.nic.in/ downloads/pc 'ic-1 formation/NGT-fin.pdf. For detailed analysis of the quest for green co rts in 1 dia leading to the NGT, see Desai, B.H. and Sidhu, B. 2010. "On the Quest. Green Courts in India". Journal of Court Innovation 3(1): 79-110, at
- DECD-AECEN, 2006. "Environmental Compliance and Enforcement in India: Rapid Assessment"; available at http://www.cccindia.co/corecentre/Database/Docs/ DocFiles/environmental india.pdf.
- For a detailed exposition on this right to a clean and hygienic environment, see Desai, B.H. 1993. "Enforcement of the Right to Environment through Public Interest Litigation in India". Indian Journal of International Law 33: 27-40.
- [1 crore = 10 million rupees. Ed.]

Bangladesh

Climate Change and Vulnerability

-Local and Global Responsibility -

by Md. Kamal Uddin*

Due to its geographical position, Bangladesh is one of the countries most vulnerable to climate change. It is a lowlying deltaic country located at the border of two different atmospheric systems - the Bay of Bengal to the south and the Himalayas to the north – whose intersection generates a variety of weather conditions and natural disasters. High temperatures, heavy rainfall and high humidity are also responsible for climate change in Bangladesh. The months of July, August and September are especially likely to bring floods, tornados, landslides, cyclones, storm surges and cold spells, etc. (Mallik et al.). Bangladesh was affected by floods in 1966, 1970, 1987, 1988, 1998 and 2007 that resulted in massive landslides, damage to infrastructure and crops, loss of human lives and the creation of many climate refugees.

Two-thirds of Bangladesh's total population lives in rural coastal areas, the majority of which are engaged in the agricultural sector and so face enormous problems of unemployment, lack of reliable access to safe drinking water (due to arsenic contamination), and health insecurity. Most of the rural and uneducated people of the country are not concerned about, or even aware of, the risk of climate change. They are more concerned about meeting their daily survival needs. As Bangladesh is one of the most densely populated, poorest and least politically stable countries in the world, however, it has been suggested that any disaster will affect two-thirds of its population and retard socio-economic development (Pender; Habib; McSmith). Infrastructural facilities like cyclone centres, health centres, and coastal and flood barriers are not adequate for the protection of rural and unaware people. The government is engaged in the development of such works with the help of foreign aid (Mallik et al.). Handling these problems

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without international cooperation would present a major challenge to the Bangladeshi government.

Key Environmental Challenges and Vulnerabilities

Gradual environmental change is distressing Bangladesh in various ways. The key environmental challenges can be divided into three types: unexpected events, on-going natural processes and sectoral impacts. The country's National Adaptation Programme of Action (NAPA) recognises the areas most vulnerable to climate change. Table 1 shows the most vulnerable areas and sectors of the country. It demonstrates that most of the productive sectors are vulnerable to climate change. All coastal areas, particularly the north-west part of the country, are highly vulnerable as a consequence of increasing temperatures, droughts, sea-level rise, saltwater intrusion, floods, cyclones, storm surges and inadequate drainage.

Unexpected Events

Cyclones

There has been an upswing in cyclones (known elsewhere as typhoons and hurricanes) as a result of

climate change. These events hit the country on average every three years, accompanied by high winds and storm surges of up to seven metres, resulting in the loss of lives and livelihoods and the destruction of houses, crops and other assets (Walsham; Tanner *et al.*). Examples of particularly devastating tropical cyclones occurred in 1970, 1991 and 2007, killing 500,000, 140,000, and over 3,000 respectively. Most recently, Cyclone Ailah affected 3.9 million people (Walsham; Chowdhury; Gentleman and Ahmed). In future, tropical cyclones may be more intense with higher wind speeds and heavy rainfall accompanying current upsurges (Pender; Alley *et al.*).

Floods

Bangladesh is one of the most flood-affected countries in Asia, due to heavy rainfall during monsoon, and the rate of sea-level rise in Bangladesh, which exceeds the mean average degree of global sea-level rise (Rahman and Alam). The floods of Bangladesh can be classified into four categories: (Bash floods (particularly in the eastern and northern it ers and border areas) caused by extensive rainfall; river Goods (which caused serious harm to lives and to prope by in 1974, 1980, 1984, 1987, 1988, 1998

Table 1. Most vulnerable areas and affected sectors due to clinate change

Climate and related factors	Most vulnerable areas	Highest impact sectors	
Temperature rise and drought	North-west	Agriculture (crops, fisheries, livestock)	
		• Water	
		• Energy	
		• Health	
Sea-level rise and salinity	Coasta area	• Agriculture (crops, fisheries, livestock)	
intrusion	• Vslands	• Water (waterlogging, drinking water, urban)	
		Human settlement	
		• Energy	
	,	• Health	
Floods	 Central region 	• Agriculture (crops, fisheries, livestock)	
	 North-east region 	• Water (urban, industry)	
	Char land	• Infrastructure	
		Human settlement	
		• Health	
		• Disaster	
		• Energy	
Cyclone and storm surge	Coastal and marine area	Marine fishing	
		• Infrastructure	
		Human settlement	
		Life and property	
Drainage congestion	Coastal area	Agriculture (crops)	
	• Urban	• Water (navigation)	
	South-west		

Source: "Promoting adaptation to climate change in Bangladesh". Rugby and Dhaka: *Practical Action*, available online at www.practicalaction.org/media/download/5857.

and 2004); more general flooding due to heavy rain; and storm surges (in the coastal area of Bangladesh) (Pender; Mirza). The floods of 1988 and 1998 killed about 6,500 and 1,100 people respectively, caused the estimated loss of 5.8 million BDT worth of livestock, damaged infrastructures and crops, and increased the risk of many diseases (Cruz *et al.*; Ahmed).

River Erosion

As a consequence of rainfall, river-bank erosion presents an extreme danger for riparian people (Ahmed). According to Walsham, "Since 1973, over 158,780 hectares of land has been eroded, and in 2010 alone, river-bank erosion is expected to displace 11,000 people living on the banks of the Jamuna, and more than 5,000 living alongside the Ganges and Padma rivers. At the same time, land accretion creates new land in and along the rivers themselves... on which more than 2 million people are estimated to live" (see also Lein). In another assessment, conducted by the Bangladesh Water Development Board and the Christian Commission for Development in Bangladesh, it was found that "1,200 km of river bank has been vigorously eroded, and more than 500 km has been facing severe problems related to erosion, ... despite some deposition of silt", and estimated that "a million people are pushed off their land by river erosion each year and many of these end up permanently displaced. Increased river erosion due to climate change is, therefore, expected to displace more and more people from their homes and farms" (Pender; see al. Cunningham and Jacques).

On-going Natural Processes Coastal Erosion

As a consequence of strong south-westerly nonsoons, high tides, heavy surges in the Bay of Berral, deforestation, and other human actions that destability coastal hill structures, coastal erosion by wave across is a non-stop

process and a critical climate problem for the country. This is different from river-bank erosion in that it is also affected by tidal and other factors. Coastal erosion causes loss of marine biodiversity by increasing turbidity and bringing about other events that damage water quality. Coastal erosion displaces citizens and changes the range of available fishery species. It also contributes to siltation in rivers and their vicinity.

Sea-level Rise

With regard to the rise in sea level, Bangladesh can be considered the most vulnerable country in the world (McGranahan et al.). Pender pointed out that "by 2080 when the situation begins to get more serious [the number of affected people] could be between 51-97 million in this vulnerable area. In 2050, assuming a sea-level rise of 27 cm, around 26 million people will be at a low risk, and almost 7 million will be at medium risk of flooding, of which 58 percent will be from Khulna, Jhalokati, Barisal and Bagerhat districts". Mohal and Hossain postulate that, by 2080, the eale el of Bangladesh will rise about 62 cm, and that 17 million, 12 million and 14 million people are likely to be at low, medium and high risk, respectively, due to effects of flood (Mohal and Hossain). The rise in sea le rel would also increase the probability of damage due to hig winds, cyclones, coastal erosion, saltwater intrusion and flooding. Table 3 represents the current tidal trends in three different coastal stations in Bangladesh.

Saltwater Intrusion

Climate change is also causing increasing salinity of fresh waters in Bangladesh. The intrusion of salt water not only reduces the availability of fresh water but also diminishes its flow in the dry season, allowing saltwater intrusion far inland, affecting the potential of supplemental irrigation, destroying land fertility and damaging crops during the high tides (Ahmed).

Table 2. Broad adverse impacts of major floods during the last 50 years

Date of flood	Impact
1954	Affected 55% of country
1974	Moderately severe, affected 58% of country, over 2,000 deaths, followed by famine with over 30,000 deaths
1984	Inundated 52,520 km², cost estimated at US\$ 378 million
1987	Inundated over 50,000 km², estimated damage US\$ 1 billion, 2,055 deaths
1988	Inundated 61% of country, estimated damage US\$ 1.2 billion, more than 45 million homeless, 2,000–6,500 deaths
1998	Inundated nearly 100,000 km², estimated damage US\$ 2.8 billion, rendered 30 million homeless, damaged 500,000 homes, heavy loss to infrastructure, 1,100 deaths
2004	Inundated 38% of country, estimated damage US\$ 6.6 billion, affected nearly 3.8 million people, 700 deaths

Source: MoEF, 2005; see also Rahman et al., 2007, at 31.

Table 3. Tidal trends in three coastal stations

Tidal station	Region	Latitude (N)	Longitude (E)	Datum (m)	Trend (mm/year)
Hiron Point	Western	21°48'	89°28'	3.784	4.0
Char Changa	Central	22°08'	91°06'	4.996	6.0
Cox's Bazar	Eastern	21°26'	91°59'	4.836	7.8

Source: Hossain and Hossain, 2013, at 4.2, citing SMRC.

Rising Temperatures

The fluctuation of temperature has become a common occurrence in Bangladesh. Within the Ganges-Brahmaputra-Megna basins, all seasons are becoming warmer with the increase projected to be 1.2°C by the 2020s and up to 2.4°C by the 2050s (Pender; see also Tanner *et al.*). These rises in temperature will have a number of consequences including a decrease in food production, and less productive fisheries (especially catches of Hilsa fish (Bangladesh's national fish) and shrimp).

Climate Change Mitigation and Adaptation in Bangladesh

As a most vulnerable country in terms of climate change, Bangladesh faces the difficult challenge of adjustment to the new atmosphere. Although the country's primary responsibility in this regard is to protect its citizens from climate hazards, internal problems interfere, making this a difficult task. Bangladesh cannot tackle the whole challenge unless the international community assists financially and technologically. However, Bangladesh (an not deny its responsibility; it should minimise the prol tent to the maximum extent possible within its capabil.

Local Action

Decentralised Approaches

Climate change adaptation can help reduct he impacts of climate change. It can minimise the me experienced as a result of climate hazards, giving a better life to the vulnerable. However, it will necessarily entail changing the lifestyles of the victims. According to Rahman, "adaptation is being better prepared or adapting to climate change, not fighting it, but learning to live with it" (Rahman, 2008). Approaches to adaptation have differed, depending on time, place and situation. Islam highlights three adaptation methods - retreat, accommodation and protection – for the coastal zone. Retreat would relocate residents to a safe area, for example. Accommodation would keep people in vulnerable zones, but recognise the need to change their lifestyles in recognition of climatecaused changes, i.e., by converting flooded farms to fish hatcheries. Protection would also leave inhabitants in vulnerable areas, but support them with protection measures such as the construction of barriers, dams and sea walls in coastal areas. Other authors (e.g., Rahman et al., 1999) include such adaptation approaches as "bearing losses, sharing losses, modifying the threat, preventing effects, changing use, changing location and restoration". They explain that "bearing losses" means doing nothing but carrying on in spite of the losses. With this strategy, there is no opportunity for the poor people of the country

to develop adequate adaptive capability in practice. Under the "sharing losses" approach, affected persons should not bear the full costs of the losses. Instead, government or private organisations could introduce a new scheme for sharing these costs through insurance and national or foreign aid. The approach of "modifying the threat" would involve actions such as altering agricultural harvesting arrangements or constructing sea walls as described above; while "preventing effects" normally entails planning and budgeting measures to prepare to address the immediate risks such as floods and cyclones. "Changing use" would normally involve at ersification of the uses of resources by shifting terns of resource allocations. "Changing location" in 'ro.'s the "retreat" strategy first mentioned at the beginning of this paragraph. Finally, "restoration" involves a process of renovating the ruined area which is affected by climate change.

None of these strategies guarantee to mitigate completely the risk of climate change in Bangladesh; and all are at best short-term solutions. Considering the massive damage involved, the need for a permanent solution should not be ignored. Though adaptation to climate is not particularly easy work for the poorest and most vulnerable countries in the world in light of their limited capacity, Bangladesh has taken some adaptation measures to lessen its vulnerability to climate change.

To date, although Bangladesh has no methodical strategy to manage the whole risk of climate change, a number of initiatives have been taken by the Bangladesh government and NGOs to ensure a positive result. Among these are strategies to promote community-based adaptation; disaster and climate risk management; and mainstreaming climate change into the country's research priorities, as well as its work on development planning, national climate change policies, planning and institutions, agricultural modification and agricultural safety.

Community-based Adaptation Strategy

As climate change's greatest impacts in Bangladesh will be on rural poor people, a community-based strategy could be a suitable and reasonable approach to adjust the lifestyles and livelihoods of rural people. Communities could easily be involved in this process, particularly in organising climate-change alerts and holding awareness-raising workshops – the primary components of the basic strategy of community-based adaptation. Communities could share their experiences with others about the risks of climate change and request them to adjust their lifestyle to new climate patterns. Helmer claimed that "[1]ocal people are the real experts" in climate change adaptation, knowing first-hand about the effects of changes of climate, and

having already developed practical means of coping with the risk of climate hazards.

The combination of a community approach and individual technical knowledge would be an effective, low-cost approach. The government and some local NGOs have taken some initiatives directed at involving local people in the adaptation process to minimise their vulnerability to climate change. The Bangladesh program of the international NGO, Practical Action, has worked with communities to establish "floating gardens" as a mechanism to protect vegetable production in vulnerable areas. It also proposes to "use water hyacinth or other local water plants, protecting the poor from hunger and providing a source of income during the post-monsoon and peak rainy seasons". In reality, this support is not by itself adequate to develop and implement the community-based strategy in the country.

Disaster Management and Climate Risk Management

Although disaster and climate risk management are effective adaptation processes, they pose difficulties for Bangladesh, due to the lack of integration and cooperation among the different levels and actors within the management system of the country. Towards these needs, however, the Bangladeshi government, particularly the Ministry of Food and Disaster Management, has launched the Comprehensive Disaster Management Programme (CDMP) in 2003 with the help of the UK Department for International Development (DFID) and United Nations Development Programme. The CDMP has introduced the Participatory Disaster Management Programme to reduce the impacts of disasters through it creating consciousness regarding needs and outcomes enhancing the people's knowledge and skill at tacking disasters, developing disaster action plans in the most vulnerable areas, improving early warning systems, c. cuing a climate change cell,1 and building cyclone . Iters (Huq and Ayers; Kelkar and Bhadwal). The European Commission (EC) has participated with the CDMP as its third leading donor. The present performance of this mechanism remains below scratch, however, for reasons of poverty, lack of institutional capacity, low level of coordination between local and central administration, and weak infrastructural facilities. If the Bangladeshi government follows the terms and conditions laid down by donor agencies, and involves local NGOs and private partners, however, this situation seems likely to improve.

Mainstreaming Climate Change into Development and National Planning

The country can also develop cluster plans as part of its process of mainstreaming climate change adaptation into development and national planning (Ahmed). Pender defines "mainstreaming" as "a commonly used term that means integrating or including a cross-cutting issue like gender or climate change into all aspects of development work carried out. For an issue such as climate change that threatens the success of almost all development activities currently carried out, it will necessitate actions across the whole range of development projects". The Bangladeshi

government has mainstreamed climate change adaptation into development and national planning as recommended by the country's National Adaptation Programme of Action (NAPA). It calls for joint action among governmental bodies, NGOs, research organisations, donor agencies and the private sector, to carry out the NAPA's climate change adaptation initiatives. Within the various government bodies, however, this mainstreaming process is slow, owing to the complexity and time-consuming nature of these decision-making processes. For example, the adoption of Bangladesh's Clean Development Mechanism by the Ministry of Energy requires authorisation from the Ministry of Environment and Forest as a designated national authority (Huq and Ayers).

National Climate Change Policies, Planning and Institutions

Climate change mitigation must necessarily involve the systematic interrelated coordinating action of various ministries, departments and actors at all levels, who are mutually commit at to the adaptation process. Many different to sof administration must be directly involved in the process. These interactions and decision-making and implementation processes are exceedingly complex due to corruption, the involvement of major actors, and the lack of administrative skill.

Integration and coordination at different levels and with different actors for adaptation are particularly significant. Without coordinated involvement of policy makers, ministries, departments, local government, national government, NGOs, donors, researchers, local elites and community stakeholders, implementation of the NAPA is almost impossible. Practically, in Bangladesh, these efforts are impeded not only by problems of coordination and integration among different levels and actors, but also by the lack of sustainable natural resource management in the country. As a result, the whole adaptation policy in Bangladesh is poorly addressed and implemented, and dotted with instances of non-cooperation, lack of integration, unavailability of resources, and lack of practical knowledge.

Global Responsibility and Governance

Climate change is a global threat that embodies a "tragedy of the commons". No State can overlook its responsibility for adaptation to and mitigation of climate change due to the externality of climate-change effects. Although the primary responsibilities for adaptation to and mitigation of climate change lie with affected countries like Bangladesh, the international community cannot ignore its obligation arising out of the production of greenhouse gases (GHGs), which is the most influential factor in climate change. Since Bangladesh is not capable of meeting these challenges alone, international cooperation is necessary to enable it to undertake effective adaptation and mitigation processes. In this context, it is not sensible to consider climate change simply as an environmental threat. Reduction of the climate threat is possible only through the teamwork of the international community. As pointed out by Figueres and Ivanova, "Climate change requires a global response, encompassing the North and the South, local and global communities, and the public and private sectors. Ranging from global negotiations to individual choices, a diversity of actors with different resource endowments, and diverging values and aspirations, need to be involved".

The climate threat is more dangerous than all other threats. Considering its massive effect on human life, climate change is considered a human rights issue by the United Nations. Every threat that damages human life is a serious issue and an obligation for the international community based on international human rights, as well as humanitarian and customary international law. Hence climate change is a global problem that requires global mechanisms to resolve it. Global cooperation and governance can seek to guarantee a reasonable distribution of resources for adaptation. Global institutions for tackling climate change can collect ideas, experiences and policies, and take appropriate action to make a sustainable policy for mitigating and adapting to climate change worldwide, giving priority to the most vulnerable countries, and offering assistance such as condition-free financial support and technological cooperation etc.



Flooding in Bangladesh

Courtesy: www.dewpoint.org.uk

Climate-change responsibility discussions, of course, should also include considerations of morality and justice. No country should evade its responsibilities with respect to climate-change mitigation, because all are bound morally and legally to protect their citizens and land from all kinds of disaster. The global atmosphere is a global public good. The production of GHGs by one country undeniably will harm others; while the control of GHG emissions by one country will absolutely benefit others. Similarly, the effects of GHG emissions will be felt, not only by the producer of the gas but also by other countries, including those like Bangladesh that are both very vulnerable and unable to take necessary measures. Considering these facts, various initiatives for controlling GHG emissions offer the only effective way to control rapid climate change in the world, and are therefore necessary at national, regional and global levels (Figueres and Ivanova). According to the United Nations Framework Convention on Climate Change, the countries that ratified the Convention are responsible for mitigating climate change, and helping poor nations in the adaptation process. As argued in the 2007 Christian Aid global briefing on climate change, "[T]his means that all developed countries, including the USA and Australia, are legally as well as morally obliged to help poorer countries adapt".

The effects of global environmental change are multifunctional and multidimensional and so require collective and effective action. Countries like Bangladesh cannot tackle these risks without the cooperation of the international community. Global governance and international cooperation are difficult to implement properly, but seem the best hope for limiting and mitigating the risk of climate change. Without them, it is almost impossible for an individual country to minimise climate risk on its own. State and non-State global action can create a sustainable mechanism for adaptation and mitigation. State-1 wel global governance can make treaties and a piventions, and strong mechanisms for their implementation. Such treaties should be binding on all

States, which must be accused by law, punished accordingly and required to remedy and/or pay compensation, in the event of a violation.

The priorities of national politics and national interest have seemed to subsume the shared goals in international politics. Most developed countries, the major producers of GHGs, are concerned about their benefits rather than climate change. It is difficult for powerful States to change this national-interest approach. Global cooperation over climate change may decrease production and economic growth in developed countries, at least in the short term, so that they are often not willing to create and implement global mechanisms for tackling climate change that will affect industrial development and economic development - important determinants

of power in the international system.

Non-State cooperation and initiatives are influential and can play a more effective role in enabling cooperative global governance of climate change through agenda setting and awareness raising. The disagreement over the certainty or uncertainty of climate change among the international community, even among scientists, is a primary obstacle to global governance. If our political leaders think climate change is uncertain, they will assume that there is still time to think about it, before committing to any specific action. Thus they may give priority to their own country's economic development rather than to climate action. Scientific cooperation is difficult but vital for the implementation of global governance. Scientists, however, have come to be increasingly involved in their

national politics, rendering internationalisation of scientific cooperation a complicated process. Scientific neutrality is in question due to the influence of national politics. Clearly, there is no suitable path for climate change mitigation and adaptation without global cooperation.

Discussion and Conclusion

Climate change is real, whether Bangladesh and the global community consider it so or not. No country can escape from climate threat in the future. If the global community ignores the issue, it will be faced with risks more terrible than those that exist following direct immediate action. The gaps in Bangladesh's adaptation processes, such as information, problem identification, coordination and interaction, awareness, institutional weakness, corruption and lack of integration at different levels will be difficult to solve in the near future. However, Bangladesh has natural and human resources that could be used in the adaptation process. Adaptation is essential for Bangladesh, whether achieved through national capacity or international cooperation. The global community should respond to Bangladesh's needs, based on their moral duty to protect innocent people and decrease the global climate threat.

While Bangladesh does not have a standard environmental policy (a serious problem for the country), a specific policy for adaptation to climate change is more urgently needed. The Bangladeshi government can easily include NGOs, the local elite and local communities in the adaptation process. This type of harmonious interaction between public and private actors is urgently needed.

Lack of academic research on climate change is another problem in Bangladesh. Innovative resea ch on climate change could explore pathways toward. Iving the problem and suggest appropriate steps to the government. Similarly, the education and awareness of a ral people, not currently adequate, is a leading change for adaptation to climate change. Training programmes organised with the help of local NGOs could facilitate raising the awareness of rural people. Existing educational institutions (primary, secondary and higher schools) could be used as training centres during vacations. Currently, there is little information in the national curriculum related to climate change, its risk and disaster management. The government should introduce compulsory courses related to environmental change and its risks into the national education system, creating a new generation that is enabled by knowledge to meet future challenges.

Early warning systems are needed, to alert people at the time of disasters. These are currently weak in Bangladesh, where rural people often have no access to predictions of weather conditions. The Bangladesh government could improve the early warning system through the development of a mobile and social network. At present, more than 90 percent of families, even in rural and vulnerable areas, use mobile phones. The government could make an agreement with mobile phone companies to develop a system that sends text alerts to all mobile clients regarding climate risks.

Deforestation and excavation are additional problems aligned with climate change and GHG increases in Bangladesh. Most people, including even the Forest Department, have been involved in deforestation, which is sometimes attributable to corruption. The government can stop these practices, if it takes measures to consider them criminal activities, and to punish those involved. For example, selling forest wood without permission should be banned and punished.

Funds for adaptation could be raised from private sources. Although Bangladesh is a poor nation, it includes rich businesses and politicians. The government could raise funds for adaptation by contract with these people. Such public-private partnerships may be the best available means of funding adaptation in Bangladesh.

Finally, global and regional environmental institutions should tackle the climate threat around the world. Branches of these institutions could be established in the most vulnerable zones such as Bangladesh, to monitor national mechanisms on adaptation. Global and regional financial institutions could be helpful to fulfil the financial needs that underlie the failure of adaptation and mitigation progress. The proposed Disaster Management Bank should give prior voto the most risky areas (e.g., Bangladesh). Without the flogical support, mitigation and adaptation are potentially too difficult for these countries, and international technological support is required.

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Notes

[The concept of the "climate change cell" was pioneered by the Government of Bangladesh, and a sestablished in the Bangladesh Department of Environment (DoE) in 1004 to left the Comprehensive Disaster Management Programme (CDM), a mardate is "to prepare technical papers for the MoEF to support international negotiations, prepare documentary on climate change vulnerable sector. If Bangladesh; publish quarterly online newsletters, formulate climate change mainstreaming guidelines, develop sectoral training modules etc". See http://www.climatechangecell.org.bd. Ed.]

Australia

The Great Barrier Reef

🗡 Maritime Spatial Planning 🗕

by Daud Hassan*

The ocean environment with its vital diversity of marine and estuarine animals and plants is an integral part of the natural and cultural heritage of the world. As an important source of food and inorganic matter, the oceans of the world are an enormous, and nearly untapped, reserve of genetic resources for humankind. They are an important medium for tourism, fisheries, mineral extraction, transportation and recreation. Because of their values (economic, social and genetic), oceans are being used at increasing levels and in a growing number of ways.

Various ocean uses are in conflict. For example, growth in vessel traffic may conflict with increasing offshore oil drilling, as might fisheries with either of these or with the construction of offshore wind turbines or the establishment of marine protected zones. These conflicts result in mounting pressures on the marine environment. Their complex interactions may have negative impacts on the

marine environment, including loss of marine biodiversity, increases in pollution and depletion of habitats.

Maritime Spatial Planning (MSP) relates to the protection of the marine environment from various threats such as pollution, drilling, unsustainable fishing and tourism activities through effective management plans and strategies. MSP allows compatible uses to share ocean spaces and it also simplifies and rationalises permit processes. As a useful measure and approach to integrated and sustainable marine and coastal management, MSP has been used at the national level in many countries, including Belgium, Canada, Germany and the UK and, at the regional level, in areas such as the Baltic Sea. One of the pioneer examples of MSP is the Great Barrier Reef Marine Park (GBRMP), Australia. The adoption of the Commonwealth's Great Barrier Reef Marine Park Act 1975 (hereinafter the "Marine Park Act" or the "Act")³ is a significant milestone in that it provides a strong legislative base for the protection and management of

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marine and coastal resources in the Great Barrier Reef Region (hereinafter the Region). In addition, various plans and policy guidelines have been formulated by the Great Barrier Reef Marine Park Authority (the "Park Authority") in accordance with the Marine Park Act to manage the Marine Park and to provide better protection of the ecosystem in the Region.

Although the current MSP regimes in the Region have made significant progress in minimising conflicting uses and achieving socio-economic and environmental objectives, questions remain as to its effectiveness in achieving ecosystem-based management. The objective of this paper is to critically evaluate the applications and shortcomings of the Marine Park Act in implementing MSP effectively. The paper commences with a description of the essence of MSP and its relationship with ecosystem-based management and zoning, as well as a brief description of the GBRMP. The paper moves on to provide an overview of the Marine Park Act, as well as the "Intergovernmental Agreement" between the Australian federal government and the government of the state of Queensland. It also briefly summarises two key governmental analyses – the 2006 Review of the Great Barrier Reef Marine Park Act and the 2009 Outlook Report, concluding with the note that although important management principles including ecosystem-based management have been carried out in the Marine Park Act, the question still remains as to its effective application in the GBRMP.

Maritime Spatial Planning

MSP is a public process of analysing and all scaling the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives. It "allows both a high level of ciny commental protection and a wide range of human activities". This approach aims "to create and establish a core rational use of marine space and the interactions between its uses, to balance demands for development with the need to protect the environment and to achieve social and economic objectives in an open and planned way".

MSP offers various socio-economic, environmental, ecological and administrative benefits to marine management issues by providing a strategic and proactive approach; supporting the ecosystem approach; identifying and demarcating ecologically sensitive areas; and evaluating management measures from reduction and control to planning and implementation.8 It is thought to enable the enunciation and evaluation of specific biodiversity commitments. It emphasises coordinated networks of national, regional and global institutions. Recently, in conjunction with the Intergovernmental Oceanographic Commission's Marine Spatial Planning Initiative, the UN Educational, Scientific and Cultural Organization, through its Man and the Biosphere Programme, has developed an interactive management process that offers step-by-step guidance on implementing MSP. These initiatives highlight best practice and knowledge sharing on MSP.

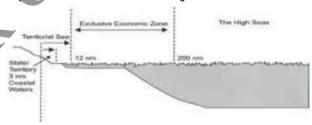
In order to facilitate effective MSP, it is vital to identify goals and to specify management objectives and performance indicators. These activities are all helpful

in putting management measures in place. They are also relevant to effective monitoring and evaluation of performance measures.

MSP includes integrated, adaptive, strategic, ecosystem-based, area-based and participatory measures. By addressing socio-economic and environmental objectives, it helps to achieve ecological benefits, such as by supporting ecosystem-based management, and by identifying and establishing biologically and ecologically significant areas as well as marine protected areas.

With regard to legally designated maritime zones, although it may be used in any, MSP is typically applied to internal and territorial waters¹⁰ and may also extend to the exclusive economic zone (EEZ).¹¹ Within its scope, it recognises certain rights (*e.g.*, public access rights, riparian rights, development rights and fishing rights), calling for them to be exercised in a sustainable manner. Sectoral and jurisdictional issues are also involved in the management process. For example, Australia is a federal State which addresses marine issues in federal as well as state legislative arrangements. In conal waters up to three nautical miles seaward of the shore are under state control while from the three nautical, miles to the extent of the EEZ (see Figure 1), the waters are federally governed.¹²

Fi vre 1. Australian maritime jurisdictions



Source: Alder, J. and Ward, T. (2001). "Australia's Oceans Policy: Sink or Swim? The Journal of Environment and Development 10(3): 266–289, at 274.

MSP and Ecosystem-based Management

MSP is a significant departure from the sector-bysector or use-by-use approaches. Rather, it is an integrated approach, which allows planners to consider various uses of oceans at the same time. The goal of this process is to make better decisions about ocean uses and to reduce potential conflicts. It provides decision makers with accurate information and maps about the geography, environmental impacts and existing uses of ocean spaces.

This ecosystem approach relates to an improved planning and management system that emphasises a balance between economic development and marine environmental conservation, not just conservation and prevention. It provides an important framework for assessing biodiversity and ecosystem services and implementing potential responses.¹³ For the purposes of this paper, it will be referred to as "ecosystem-based management" (EBM).

For the purposes of marine management, EBM has been defined by the Oslo and Paris Conventions for the protection of the marine environment of the North-East Atlantic (OSPAR) and the Baltic Marine Environment Protection Commission (HELCOM) as follows:

The comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of marine ecosystems, thereby achieving sustainable use of goods and services and maintenance of ecosystem integrity.¹⁴

Clearly, the MSP process needs to be ecosystem-based, focusing on the efficient management of ocean uses and the improvement of the marine-ecosystem health and services, while acknowledging the interconnections between the marine environment and its various uses. Controlling various human activities to eliminate unacceptable degradation of ocean ecosystems and resources, EBM is an approach that helps to maintain the integrity of the marine ecosystem and to achieve an acceptable level of conservation and protection of biological diversity.¹⁵ Important principles with respect to EBM include the following: "maintenance of ecological integrity; intergenerational planning and management for multiple uses; promotion of ecologically sustainable industries; clear governance arrangements; planning and management that accommodates uncertainty; and the use of the precautionary principle".16

MSP and Zoning

Zoning is a means of applying MSP to specific ocean spaces – the toolkit for implementing the ecosystem approach and protecting plants, animals and habitats – in the marine environment. It is an objective-based proces which aims to achieve a healthy marine ecosystem v separating potentially conflicting ocean uses real sing those conflicts and enabling economic and social benefits from various commercial and recreational activities. It is associated with a management plan for the nonlementation of specific targets and objectives in values zoning areas. Applying various management principles including clear assessment of all current and potential uses as well as the gathering of relevant information in a particular zone is important. According to the Synthesis Report of a project known as "Baltic Sea Management - Nature Conservation and Sustainable Management of the Ecosystem through Spatial Planning", ¹⁷ there are generally four types of zones in MSP:

- General-use Zones: areas in which all activities are allowed as long as they are permitted by law and fulfil some requirements such as permits and environmental impact assessment;
- Targeted-management Zones: areas in which some restricted activities and uses are allowed, so that overlapping activities and uses may sometimes
- Exclusive-use Zones: areas to be used for a specific type of use only, although certain activities such as aquaculture facilities, gas pipelines and renewable energy could take place in the zone if they are compatible with the main purpose of the zone; and
- Restrictive-access Zones: areas to which access is highly restricted for adequate protection of certain

areas or issues (unique ecological habitat, military use) – another type of single-use zone. 18

Zoning plays an important role in the achievement of an effective balance between conservation and sustainable use of ocean resources in any given marine ecosystem. ¹⁹ A clear specification of zones and the ability of users to identify them are essential for this zoning process to be effective. In this context, it is important to have a legislative framework with spatial planning concepts as well as technical support measures. The current regimes of the GBRMP could be an ideal example of this management process. The regimes are also supported by other spatial and non-spatial management measures which are making a difference in a positive way.

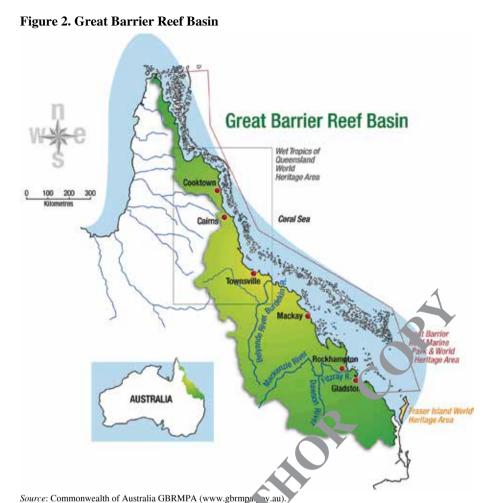
Great Barrier Reef Marine Park

The total area of the GBRMP is 344,400 km². In addition to being one of the largest marine ecosystems in the world, it is also one of the richest and most diverse. The reef spans a length of 2,300 km along two-thirds of the east coast of Queens, and and represents about 10 percent of the world's areal reef areas.²⁰ It extends over Queensland State coast. We terr to the low-water mark. Vesting title and powers over these waters is subject to the operation of the Marme Park Act.²¹

Che Park is the source of billions of dollars for the Australian economy each year from mining and tourism, commercial and recreational fishing and shipping activities, and supports more than 50,000 jobs. ²² The catchment area adjacent to the Reef comprises 22 percent of Queensland's land area. ²³ There are around 900 islands and cays within the Marine Park and about 70 of them are owned by the Commonwealth and form part of the Marine Park. ²⁴ The rest of them are under Queensland's jurisdiction and almost half of these are national parks under Queensland's Nature Conservation Act 1992. ²⁵ There are more than 70 traditional owner groups along the reef coast and their custodianship extends to marine resources, the sea and islands. ²⁶

The Great Barrier Reef World Heritage Area, also listed in the National Heritage list, covers an area of 348,000 km².²⁷ Queensland Island National Park is also part of this area. Due to its natural as well as historical significance, the Park has been included in the World Heritage List under the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage since 1981.²⁸

The GBRMP is a very large zoned multiple-use area which meets the definition of four of the International Union for Conservation of Nature's six types of protected areas: strict nature reserve (865 km²), national park (114,715 km²), habitat/species management area (15,040 km²) and protected area with sustainable use of natural resources (213,780 km²).²9 It is a multiple-use park that permits a wide range of activities including fishing, ports and shipping, recreation, defence activities, marine tourism, scientific research and indigenous traditional use.³0 Although many uses are permitted, a range of planning and management measures are employed to protect and preserve the Park's values as well as to reduce, control and prevent various conflicting uses of ocean spaces in the Park. These include prohibition of certain activities (*e.g.*, mining)



and provisions that cautiously allow other activities (e.g., fishing and tourism). In the process of defining locations for activities, zoning plays a significant religion the achievement of environmental as well as socio-economic objectives in various marine sectors including land use, conservation, coastal defence, military activities, navigation, submarine cables, fishing, tourism, recreation, renewable energy, oil and gas, and mineral extraction. In 1990, the Marine Park was declared a particularly sensitive sea area (PSSA) by the International Maritime Organization, recognising the Park's ecological, socio-economic and scientific values and the need to protect it against damage from international shipping activities.

Overview of the Great Barrier Reef Marine Park Act 1975

The GBRMP was established by the Marine Park Act. Its control and development is basically governed by the Act through the Park Authority.

Currently, the Marine Park Act has 13 parts (not serially numbered) and one schedule. Part I contains some preliminary issues including the main object of the Act, which is "to provide for the long-term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region".³¹ Other objects of the Act include sustainable use of the Region

for the purpose of public enjoyment and appreciation; recreational, economic and cultural activities;³² meeting international obligations with respect to environmental protection; and protection of designated World Heritage sites.³³ The Act encourages community participation in the protection and management of the Region by engaging various stakeholders, industry partners and government officials.³⁴

In order to achieve the above objectives, various management measures are mentioned in the Act, including establishment of the Park Authority; adopting zoning plans and plans for management; partnership building with traditional owners; and application of a collaborative management approach.³⁵ The Act emphasises ecologically sustainable use of the Region or its resources that is consistent with its environmental protection, conservation, biodiversity and heritage values and its EBM.³⁶ Various principles of ecologically sustainable use

are specifically mentioned in the Act, including the use of integrated decision-making processes; the precautionary principle; the principle of intergenerational equity; and improved valuation and incentive mechanisms.³⁷ Interpretations of various elements in the zoning plan, including provisions for tourism, construction and the GBRMP educational programme, are contained in Section 3A of the Act. According to the Marine Park Act, the precautionary principle "means the principle that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage". 38 Ecosystem-based management is defined as "an integrated approach to managing an ecosystem and matters affecting that ecosystem, with the main object being to maintain ecological processes, biodiversity and functioning biological communities".³⁹

Parts II and III of the Act contain provisions on the establishment, functions and powers of the Park Authority, and the constitution and meetings of the Authority respectively. According to the Act, the Park Authority is primarily responsible for managing the GBRMP. Section 10 states that the Park Authority consists of a full-time Chairperson and up to four part-time members appointed by the Governor-General. Upon invitation of the Commonwealth Government, the Queensland

Government can nominate one of the part-time members of the Authority.⁴⁰ All appointments are for up to five years, but eligible for reappointment.⁴¹ Important functions of the Park Authority include making recommendations to the Minister responsible for the Park with respect to the care and development of the park; carrying out research (individually or jointly); preparing the GBRMP management and zoning plans; providing information and advice to the responsible Minister in relation to the Intergovernmental Agreement between the Commonwealth and Queensland governments; and granting financial assistance from the Commonwealth Government to the Queensland Government in respect of Marine Park issues.⁴² The Authority has the power to enter into agreements and arrangements, to acquire real or personal property for the purposes of the Authority, and to perform its functions with respect to the Queensland Government and any authority/ agency or local governing body of the State. 43 According to Section 40, the Authority is the statutory body for the purposes of the Commonwealth's Public Services Act 1999. It is empowered to appoint staff, including inspectors, and the Authority can specify their powers under the Act as well as under the Commonwealth's Environment Protection and Biodiversity Conservation (EPBC) Act 1999.44

There are four divisions of Part V of the Act. Division 1 relates to the areas of the GBRMP that can be declared by proclamation of the Governor-General, subject to the report submitted to the relevant Minister by the Authority. 45 Division 2 deals with zoning plans and procedures with a view to achieving a healthy marine environment in the Park by protecting the ecosystem, conserving the biodive sit, protecting the world heritage, managing competing usage demand, reserving some areas for public enjoyment and preserving some areas undisturbed. 46 As soon as provicable after an area is declared to be a part of the Marine Park under Section 30 of the Act, it is the responsibility of the Authority to prepare a zoning plan, 47 plotting a name or other designation of each zone within it and the purpose of using the zone. 48 Section 32C requires notice of intention to prepare a zoning plan and consideration of any comments made by the public with respect to the notice before preparing a zoning plan. Detailed provisions for preparing a zoning plan by the Authority are outlined in Section 34 of the Act, which provides the operational principles requiring the zoning plan to address socio-economic and environmental objectives, in order to be approved by the responsible Minister. To this end, the zoning process must include preparation and consideration of assessments of the socio-economic and environmental effects of such a plan.⁴⁹

In addition, in preparing a zoning plan, the Authority must consider a range of listed issues, as the basis for the Minister's approval. These are listed in Section 35A of the Act. Once it has complied with all these procedures, the plan will be placed before both Houses of the Parliament in compliance with Section 38 of the Commonwealth's Legislative Instruments Act 2003. If it is passed by the Parliament, the plan will come into effect once proper notice has been published in the *Gazette*. Once a zoning plan is in force, the Authority must perform its functions and exercise its power in accordance with that plan.⁵⁰

According to Section 37 of the Act, a zoning plan has to be in operation for at least seven years, before it can be substantively amended, although of course minor amendments and correction of typographical errors can be made with the Minister's approval.⁵¹

Division 3 of Part V of the Act obliges users of the Marine Park to take all reasonable steps to prevent or minimise harm to the marine environment in the region. The Act considers "harm" to include adverse effects on the park, as well as both direct and indirect harm, ⁵² and provides guidance for determining reasonable steps toward prevention and minimisation of harm, based on the nature of the harm or risk of the harm, the objectives of the activities undertaken and the specific conditions relevant to such use. ⁵³ The relationship between the Marine Park Act and the EPBC Act is explained in Division 4. In particular, Sections 37AB and AC of the Act are devoted to avoiding unnecessary duplications and making the Act consistent with the EPBC Act by including broader objectives for the conservation and protection of the ecosystem of the reef.

Provisions on offences and penalties with respect to the GBRMI re addressed in Part VAA (which follows Part V). The se include, for example, up to three years' impriso mert or 2,000 penalty units or both for an aggravated offence⁵⁴ and a civil penalty for an aggravated continuention of relevant law of up to 5,000 penalty units for an individual and up to 50,000 penalty units for a body corporate.55 Various penalties (imprisonment as well as vivil penalties) for unauthorised conduct in marine park zones are also prescribed.⁵⁶ Penalties are also set out for conduct in unzoned areas of the Park, conduct in the marine park generally and other conduct contravening conditions, as well as issues relating to collective and vicarious liability, aggravated offences and contraventions and miscellaneous conduct. In some circumstances, a strict liability will apply. For example, strict liability will apply where a person conducts an activity in a zone where it is prohibited or requires permission.⁵⁷

Collection of environmental management charges is outlined under six divisions in Part VA (which follows Part VAA) with the object of making provisions on liability to charges and collection of charges imposed by "(a) the Great Barrier Reef Marine Park (Environmental Management Charge-General) Act 1993 and (b) the Great Barrier Reef Marine Park (Environmental Management Charge-Excise) Act 1993".58 Part VB (which follows Part VA and precedes Part VI) relates to management plans. It outlines the objects of the management plans that include ensuring that the Authority must consider nature conservation, heritage, cultural, recreational and scientific values that are or may be threatened in specific areas of the Marine Park and developing appropriate proposals to address the threats on the basis of ecologically sustainable use.⁵⁹ In order to achieve these objectives, this Part also enumerates various aspects of management such as the preparation of management plans, 60 the types of management plan,61 the arrangements that may be made with interested community groups for the development and implementation of plans,62 and the requirement of a notice of proposal before preparing a management plan. 63

According to Section 39ZF, confirmed management plans are legislative instruments and the Authority must comply with such plans once they are in force.⁶⁴

Finance and reporting requirements are discussed in Part VII of the Act. A special account for the purposes of the Commonwealth's Financial Management and Accountability Act 1997 is established for the management, protection and maintenance of the Great Barrier Reef World Heritage Area. 65 The whole management process in the GBRMP is under constant governmental review for any future changes to the process, based on the Annual Report prepared "as soon as practicable after 30 June in each financial year" and an Outlook Report which is to be published every five years.⁶⁶ The Chairperson of the Authority is required to provide the report to the relevant Minister which will include directions given by the Minister for the year, financial statements and an audit report required under Sections 49 and 57 of the Financial Management and Accountability Act 1997 respectively.⁶⁷ According to Section 54 of the Marine Park Act, the Outlook Report is to be peer reviewed by at least three qualified persons. It must discuss the current environmental status of the GBRMP and the effectiveness of the management plans. All assessment objectives are to be framed on the basis of environmental impact and risks to the ecosystem in the Region. The report must also assess current biodiversity, current condition of ecosystem health, current risk to ecosystem, and current and future environmental, economic and social values of the Region 68

Part VIIA of the Act deals with compulsory piletage of regulated ships within a specified "compulsory," long area" (the "CP area"). 69 It is an offence if a regulated hip navigates in the CP area without a pilot. The nobility of the ship's master and owners, when navitating in the CP area with a pilot, is also explained in this Part. Upon application in writing by the owner of the regulated ship, the responsible Namer and grant an exemption from the pilotage requirement if the Minister thinks that the ship would not pose any threat or any risk to the environment in the CP area. 70 An inspector has the power to stop a regulated ship navigating in the CP area if there are reasonable grounds to do so. 71

Part VIII deals with enforcement, outlining various enforcement powers of the Authority including issuing vessel monitoring directions, emergency directions, and enforceable directions; and limiting access to the Marine Park. Failure to comply with these directions could be considered as an offence and may be subject to civil penalty.⁷² Other enforcement-related matters include infringement notices and revoking certificates under Sections 61ALA and 61AMC respectively.

Part IX is miscellaneous which includes provisions on reconsideration of decisions made by the Minister, 73 review of decisions by the Administrative Appeals Tribunal (AAT) 74 and application of the Act subject to international obligations. 75

The important aims of the current regimes in the Region are as follows: to protect and restore its marine resources and ecosystems by using the marine and coastal area in sustainable, efficient and productive ways; to increase

public access and involvement; to reduce conflicts of uses by promoting compatibility among various uses; to improve decision making; and to enhance interagency and intergovernmental collaboration. Meetings between the Authority and stakeholders (fishermen, shipping companies, oil drillers, recreational boaters) and reports on the ways they use the oceans are important components of the process.

The protection and management of the Marine Park uses an adaptive-science-based management approach that has evolved significantly in various phases. ⁷⁶ Fundamental changes have occurred in regulatory and governance matters since the adoption of the Marine Park Act in 1975. In particular, various management approaches in the GBRMP have evolved and changed over time to address the challenges and to safeguard the GBRMP. These have led to and been reflected in the 2006 "Review of the *Great Barrier Reef Marine Park Act 1975*", the 1979 Great Barrier Reef Intergovernmental Agreement (the "Emerald Agreement"), the 2009 Great Barrier Reef Intergovernmental Agreement (the "Intergover mental Agreement") and the *Great Barrier Ref Dutlook Report 2009*. Kenchington and Day have oat the dix phases of this process, as follows:

- 1. a 2 min; strategy to explore the practical barriers and opportunities of applying terrestrially derived zoning approaches in the marine context;
- 2. the progressive declaration and zoning of subsequent sections of the overall Marine Park;
- consolidation to address changing patterns of human use and impact and differences in management-related information that had become apparent through planning and management. It also includes consideration of new management arrangements to meet World Heritage listing requirements;
- 4. based on the 25-year strategic plan, applying an issue-based focus to review of the Marine Park (including conservation, heritage, indigenous interests, fishing, tourism, recreation, water quality and coastal development);
- 5. a comprehensive and systematic re-zoning of the whole Marine Park with a view to increasing the protection of biodiversity in the Region; and
- 6. flowing from legislative amendments based on the 2006 review of the Marine Park Act, the preparation of the *Great Barrier Reef Outlook Report* and its submission to the Minister by the Authority.⁷⁷

The 2006 Review of the Marine Park Act

The current provisions of the Marine Park Act are the reflection of the recommendations provided by the Review Panel in 2006. In the process, extensive consultation with relevant government and non-governmental organisations, community associations and industry partners took place. The review considered a total of 227 substantive submissions from various interested parties.⁷⁸

The panel evaluated the applications and shortcomings of the Act relative to effective management of the Park and advised on a number of issues including the efficiency of the current arrangements, consultation mechanisms, functions of the Authority and the relationship between the Marine

Park Act and the EPBC Act. The review panel expressed the view that, although the Marine Park Act provides a sound operational and institutional framework, improvements can be made to increase the capacity of the governments and the Authority to deliver long-term protection of the reef.⁷⁹ It highlighted the possibilities of updating and streamlining the regulatory framework; better ensuring effective involvement of all stakeholders;⁸⁰ modernisation of the Marine Park Act, by incorporating contemporary management principles such as ecologically sustainable development and ecosystem-based management; better alignment between that Act and the EPBC; and reduction of unnecessary duplications between relevant Queensland and Commonwealth legislation.⁸¹

In order to achieve a cohesive and integrated operation of the legislative scheme, the panel recommended that the Marine Park Act have precedence over others with regard to activity within the Marine Park. For example, the Marine Park Act would apply to both Queensland and Commonwealth waters in the Region and, while the EPBC Act would continue to provide an overarching basis for environmental impact assessment relative to all Commonwealth areas, this responsibility as well as regulatory permitting functions would generally remain with the Authority.82 The panel also recommended that the enforcement and offence provisions of the Marine Park Act be reviewed and updated to achieve better consistency with the EPBC Act as well as to improve enforcement efficiency.⁸³ It also generally recommended better transparency, accountability and engagement with stakeholders for the long-term and sustainable protection of the Marine Park.84

The Intergovernmental Agreement

As a sign of high-level cooperation as well as a symbol of interagency cooperation in managing and protecting the Marine Park, the Emerald Agreement was adopted in 1979 between the Australian Federal and Queensland governments. The agreement focused on a number of issues, including the establishment of a Queensland-Commonwealth Council on the Marine Park Region, management of the Park in the Region, establishment of programmes for joint scientific research through the Ministerial Council, and joint press statements.⁸⁵

In 2009, in light of a series of collaborative arrangements that had evolved since 1979, and their shared recognition of the future challenges and pressures from increased uses of the Marine Park, both governments agreed to update the 1979 agreement. As a result, the 2009 Great Barrier Reef Intergovernmental Agreement (the "Intergovernmental Agreement") was signed, with the following objectives:

- to provide for the long-term protection and conservation
 of the environment and biodiversity of the reef
 ecosystem, as encompassed by the Reef World Heritage
 Area, and its transmission in good condition for future
 generations;
- to allow ecologically sustainable use of the Reef ecosystem subject to the overarching objective of long-term protection and conservation; and

 to provide for meeting Australia's international responsibilities for the Reef World Heritage Area under the World Heritage Convention.⁸⁶

In order to implement the agreement, the governments are to apply a number of guiding principles including the precautionary principle, the principles of ecologically sustainable use, integrated management consistent with EBM, and coordinated long-term monitoring and research. The Intergovernmental Agreement also contains provisions on the formation of a Ministerial forum, whose strategic role would be to implement the Agreement's objectives including joint policy development and coordination, to ensure integrated and ecosystem-based management, and to periodically consider the condition of the reef ecosystem and advise the Prime Minister of Australia as well as the Premier of Queensland in the *Outlook Report* every five years, as set out in the Marine Park Act. 88

The 2009 Ovelook Report

The Outloo Report is an assessment document that contains the by findings about the reef ecosystem, its use, its riana, ement approaches and the pressures that the reef ecos tem is facing from multiple uses of the Marine Parl This report is structured around the eight assessments (including assessment of biodiversity, ecosystem health, commercial and non-commercial use, risks to the , ecosystem resilience, and existing protection and management) required by the Marine Park Act. 89 These assessments were based on various assessment criteria: habitats to support species and populations of species and groups of species were used for biodiversity; physical, chemical and ecological processes were used for ecosystem health; benefits of use and impacts of use were used for commercial and non-commercial use; understanding of context, planning, management systems and processes, delivery of outputs and achievement of outputs were used for existing protection and management; recovery after disturbance was used for ecosystem resilience; and overall threat to the ecosystem was used for risks to the reef.⁹⁰ The 2009 Outlook Report suggests that the ecosystem of the reef will survive better under the pressure of accumulating risks than most other reef ecosystems around the world, given the strength of the current management of the Great Barrier Reef Region, although the overall outlook is still poor.⁹¹

Systemic Summary

As groundbreaking legislation, the Marine Park Act has established the concept of a multiple-use marine park, by providing a useful basis for the coexistence of reasonable use and conservation. It reflects a strong link between policy formulation and operational guidelines. The Park Authority has the primary responsibility to formulate and implement plans, policies and guidelines in accordance with the Marine Park Act. For the Park Authority, a range of advisory committees work with Commonwealth and state agencies and bodies and provide advice and guidance at a range of spatial levels to achieve positive planning outcomes for the Marine Park.

Spatial planning is one of the cornerstones of the Park's management strategy to "maintain the biological diversity and ecological systems that create the Great Barrier Reef; manage the impacts of increasing recreation and expanding tourist industry; manage effects of recreational and commercial fishing; and manage impacts of risks of land-based pollution and shipping". A Zoning in the Marine Park is a legislative instrument in its own right, as well as being the key to its planning. Thus, with a view to achieving better protection of the ecosystem, the Marine Park was re-zoned in 2003 as a scientifically based network of protected areas. This new zoning plan came into force in July 2004 and increased the percentage of highly protected (no-take) areas within the GBRMP from 4.6 percent to 33.3 percent.

According to the 2003 Zoning Plan, there are eight zones ranging from least restrictive, where most activities including shipping and commercial fishing are allowed with or without permission of the authority, to strictly restrictive areas where practically no activities are allowed. Their designations are as follows: general use zones, habitat protection zones, conservative park zones, buffer zones, scientific research zones, marine national park zones, preservation zones and commonwealth island zones.97 The objectives of each zone are detailed in individual sections of the Plan. For example, the objective of the general use zone is focused on conservation of the GBRMP, while providing opportunities for reasonable use; habitat protection zones relate to the conservation of the Marine Park through the protection and manage nend of sensitive habitats; scientific research zones are to provide protection of the natural integrity and value of the GBRMP, generally free from extractive act, ities; preservation zones are to provide preservation of be natural integrity and values of the Park, generally undisturbed by human activities; and Commonwealth isla. 1 zones provide

conservation of Park areas above 10, water.98 This current Zoning Plan has established shipping areas, special management areas and fisheries management areas to facilitate navigation, regulate activities in heavily used areas and promote the continuation of scientific research on fish stocks. 99 As an important basis for achieving a healthy and productive ecosystem and effective MSP in the region, zoning plans seek to ensure the continued existence of marine animals, plants and habitats; extra protection of threatened species such as marine turtles; continuing operations of those industries that rely on the health of the Park and provide social and economic benefits to communities; the protection of recreational, cultural, educational and scientific benefits and values; and continuing use and enjoyment of the Park by future generations. 100

Operations of relative legislative schemes, including adopting plans and management measures within the Marine Park region, are conducted and implemented in accordance with the Marine Park Act.¹⁰¹ As Federal legislation, the Marine Park Act has precedence over state legislation if there are any inconsistencies between the

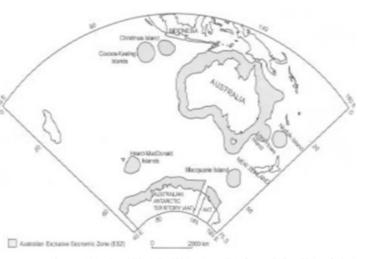
two. ¹⁰² Within the region, the Act even enjoys precedence over many other Federal enactments. Operating the Park Act and the EPBC Act in an integrated and cohesive manner has enabled significant development in the implementation of ecologically sustainable management principles and MSP in the region.

Other spatial management measures, such as the use of site permits, specified military training areas, shipping areas and formal agreements with traditional owners, can exist in the GBRMP as long as they are consistent with the Marine Park Act.¹⁰³ Non-spatial management measures, such as environmental best practice, industry partnerships, public education, community engagement and public participation have also been specially developed within the region.¹⁰⁴

The comprehensive and adaptable spatial planning system for the management and protection of the GBRMP, as noted in the Marine Park Act, provides a special regime of conservation and multiple use of the reef which "includes spatial management of a large marine ecosystem through zoning with power to deny, or impose limiting conditions on, use of the entry to all part of marine commons within the Marin Park". ¹⁰⁵

Various initiatives for ocean and coastal management were incoduced in Australia well before the adoption of international legal instruments, particularly relating to marine environmental protection. The Marine Park Act is a notable example in this respect. Then, in 1998, in order to fulfil its international obligations in its maritime zones, particularly in the EEZ, and to provide a framework for ecologically sustainable development, EBM was introduced in Australia's Ocean Policy to support the Marine Park Act, with regard to planning and management of the Marine Park.

Figure 3. Australia's exclusive economic zone (EEZ)



Source: Alder, J. and Ward, T. (2001). "Australia's Oceans Policy: Sink or Swim? The Journal of Environment and Development 10(3): 266–289, at 266.

However, the battle is not over. Effective EBM implementation is yet to be achieved. According to the 2009 Outlook Report, although planning and management systems, and delivery of outputs are good under the current

protection and management regimes, financial, staffing and information inputs are poor, as is the achievement of outcomes.¹⁰⁷ The risks to the ecosystem from the compounding impacts of catchment run-off, coastal development, climate change and extractive use are very high.¹⁰⁸ The long-term and overall outlook of the reef is poor, despite the significant protection and management initiatives that have been undertaken in the Region.¹⁰⁹

The most recent amendment to the Marine Park Act was made in line with recommendations of the 2006 Review Panel; however, those recommendations are yet to be fully implemented. The zoning plans are not completely free from socio-economic impacts. The concerns raised by stakeholders about the participation process have not been eliminated.¹¹⁰ An effective relationship with recreational and commercial fishing stakeholders is still lacking. The current arrangement lacks comprehensive guidance in terms of heritage management. Full sectoral integration is yet to be achieved. More explicit, more equitable and more transparent guidance in decision making, in participatory planning processes, and in allocating resources with respect to competing uses are imperative to make the management plans and practices effective, and to achieve ecosystembased management, as framed in the latest amendment of the Marine Park Act.

Although the new zoning plan, reef water-quality protection plan and climate-change response programme seek to reduce the pressure on the reef by increasing the protection of habitats and communities and maintaining the ecological process that sustains the reef's ecosystem, a recent study undertaken by scientists from the Aust. Jia. Marine Research Institute and the University of Wol. 1900. g reported that the World-Heritage-Listed reef his lost, fall of its coral cover in the past 27 years and this could halve again if the trends continue. 111 Soon after that report was published, the Australian government additional certain aspects of having neglected the reef for conades. 112

The report highlighted the increased role for effective and more careful management of the reef in changing environmental conditions due to marine and coastal development, catchment run-off and climate change, and increased levels of sediments, nutrients and pesticides. In order to enable the reef to adapt to and recover from serious future threats such as climate change, the report recommended a number of essential actions including the following: further building resilience by improving water quality; reducing the loss of coastal habitat; reducing pollution; increasing awareness and knowledge about zoning plans and provisions; making tourism and fisheries sustainable; and effective implementation of sustainable management principles, including EBM.

Implementation System

The successes and failures of a legal regime to protect the marine environment depend on the adoption and implementation of adequate legal and policy bases. Creating clear legal obligations is the first step towards making the arrangements potentially effective. These provisions must define specifically the level at which environmental standards are to be maintained and assign the

responsibility for decisions in relation to the balancing of interests between environmental protection and economic development. They must be supported by the capacity to implement them.¹¹³

Implementation systems comprise many legislative and administrative steps – acts of governmental units (existing regulations and new laws), and activities of non-State actors, such as scientists and marine environmental groups who undertake monitoring or assist national governments as they put commitments into practice. ¹¹⁴ Monitoring aims at providing information on the situation of the marine environment and its findings, usually from the basis of recommendations adopted by organisations for future strategies to deal with specific marine environmental problems. ¹¹⁵ There has been wide recognition that some system of monitoring and reporting of national performance is necessary to achieve effective control of environmental pollution.

Implementation requires coordination and integration of complex political and economic elements, 116 including national, regional, and global institutions. Improving measures for voiding and settling marine environmental disputes in ea, ing community participation, preventing and mit cating marine environmental damage, and strengthening and developing marine environmental laws and compliance are all key elements in effective implementation. 117

Community participation is the cornerstone in environmental development, and it is a constructive, useful and necessary tool in the implementation process of the specific marine environmental regime. It is also one of the fundamental prerequisites for the achievement of marine environmental protection and resource sustainability. It All of these aspects have been recognised in principle 10 of the Rio Declaration and in Agenda 21. Chapter 23.2 of Agenda 21 states:

One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. In the more specific context of environment and development, the need for new forms of participation has emerged. This includes the need of individuals, groups and organizations to participate in environmental impact assessment procedures and to know about and participate in decisions.

The implementation system relies on the choice and application of appropriate arrangements.¹²⁰ Interrelationship of economic and marine environmental factors and meaningful cooperation to enhance capacity building are important in this respect. Concrete and positive implementation can only be achieved when political commitment is present and is supported financially.

The Marine Park Act introduced a new process for community participation by focusing on interactions between the public and private authorities. The compliance committee and the independent role of the Park Authority, government accountability, transparency and responsiveness exist in the Marine Park Act. Development mechanisms, monitoring measures, site visits, review

procedures and public awareness mechanisms have added value to the Act with respect to implementation.

As regards implementation mechanisms, the Marine Park Region represents a relative success; however, due to increased pressures from the multiple use of the GBRMP, the various roles of the Park Authority, stakeholders and community groups, other private sector entities and civil society groups are becoming more complex, and require the emergence of greater cooperation and stronger alliances for effective MSP implementation through the Marine Park Act. These observations indicate that the present implementation mechanisms need to be strengthened by reinforcing commitment and supporting and promoting multifaceted compliance to achieve effective protection of the Marine Park.

Conclusion

In spite of some shortcomings, the GBRMP is in relatively good shape. The Marine Park Act has provided a very good foundation and operational guidelines for the management of ocean uses in a reasonable manner. The 2006 Review of the Marine Park Act has provided a new impetus for the implementation of MSP by stimulating the planning process and providing greater guidance about ecosystem conservation and the priorities of implementing ecologically sustainable management principles. The Intergovernmental Agreement between the Federal and Queensland governments has demonstrated long-term commitment to working together and to establishing a sound base for achieving a balance of commercial and noncommercial activities and the health of the ecosystem in the region. Important instruments (zoning plans and sopoling regulations and plans for management) in conjunction with other spatial and non-spatial management too. such as community and stakeholder engagement measures, have contributed to establishing a very strong basis for the achievement of the original objectives of the Marine Park Act and its requirement of "an effective operational and institutional management framework to ensure the control, care and development of the Marine Park". 121

Australia is the only country with complete control of a continent and as a result is unique compared with other nations. 122 The current management regimes of the Great Barrier Reef could offer a very useful or ideal approach for others to follow with regard to marine parks created at national level where there are no jurisdictional complexities, and the marine ecosystem falls under the jurisdiction of a single coastal State. It would not necessarily be comparable or useful when attempting to integrate and balance historic, evolving and future uses, or in a transboundary context.

New issues, new requirements and new considerations continue to emerge as the governance and management processes unfold. 123 Although much has been achieved, more is needed in order to fulfil the amended objectives of the Marine Park Act. 124 Effective implementation of ecologically sustainable management principles including EBM requires adequate integration in resource management to maximise the success of its planning and management measures.

Due to increased pressure on the Marine Park, increased protection and conservation is required to make the MSP more functional and more sustainable. Transparency and accountability of the Park Authority in the public domain need to be improved. Community education, effective participation of a full range of stakeholders, more effective sectoral integration and effective integration of all operational agencies in cross-boundary sector management are also important. A new model that will facilitate and ensure organisational change and the values of biological diversity by ensuring the integrity of the zoning and multiple uses of oceans could be a way forward in the continuation of this implementation journey.

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Notes

- 1 Kell or G. and Kenchington, R. (1991). Guidelines for Establishing Marine Pr tected Areas, at 8. A Marine Conservation and Development Report. Gland: IU
- 2 The resources of the ocean may be classified into three categories: chemical (materials dissolved in the water), biological (living resources); and geological (minerals on or beneath the ocean floor). See Jones, E.B. (1972). Law of the Sea: Oceanic Resources, at 71. Dallas: Southern Methodist University Press.
- $3\,$ Great Barrier Reef Marine Park Act 1975 (Cth), Act No. 85 of 1975 as amended up to 2011 (hereinafter the Marine Park Act).
- 4 Maritime Spatial Planning Initiative; see http://www.unesco-ioc-marinesp.be/marine_spatial_planning_msp.
- 5 Day, J. (2008). "The Need and Practice of Monitoring, Evaluating and Adapting Marine Planning and Management". *Marine Policy* 32(5): 823–831.
- 6 Supra, note 4
- 7 For details see Gilliland, P. and Laffoley, D. (2008). "Key Elements and Steps in the Process of Developing Ecosystem Based Marine Spatial Planning". *Marine Policy* 32(5): 787–796.
- For details see Ehler, C. (2008). "Conclusions: Benefits, Lessons Learned and
 Future Challenges of Marine Spatial Planning". Marine Policy 32(5): 840–843.
 Supra, note 4.
- 10 See Articles 8 and 23–26 of the UN Convention on the Law of the Sea (UNCLOS) 21 JLM (1982) 1261, came into force in 1994
- 11 *Ibid.*, Article 55. The EEZ is an area beyond to the territorial sea, subject to the specific legal regime established in Part V under which the rights and jurisdiction of the coastal State and rights and freedoms of other States are governed by the relevant provision of the Convention. The limits of the territorial sea and the EEZ extend up to 12 and 200 nautical miles from the baseline of a coastal State respectively.
- 12 Alder, J. and Ward, T. (2001). "Australia's Oceans Policy: Sink or Swim?" Journal of Environment and Development 10(3): 266–289, at 274.
- 13 Douvere, F. (2008). "The Importance of Marine Spatial Planning in Advancing Ecosystem-based Sea Use Management". *Marine Policy* 32(5): 762–771, at 764.
- 14 See OSPAR-HELCOM, Statement on the Ecosystem Approach to the Management of Human Activities, First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions, Bremen, Germany, 25–26 June, 2003. Also ICES Advisory Committee on Ecosystems, Report of the Regional Ecosystem Study Group for the North Sea 2003.
- 15 Supra, note 12, at 284.
- 6 Ibia
- 17 The "Baltic Sea Management Nature Conservation and Sustainable Management of the Ecosystem through Spatial Planning" Project, also known as the "Balance Project", was partly funded by the EU through its regional development fund. Running from 2005–2007, and coordinated through the Balance Secretariat located in Copenhagen, Denmark, its main aim was to develop adequate management tools based on spatial planning and transnational and cross-sectoral cooperation for Baltic Sea governance. For additional details, see www.balance-eu.org.
- 18 Merrie, A. (2010). Managing the Marine Mosaic: A Briefing on Marine Spatial Planning with an Ecosystem Approach, at 10. Stockholm Resilience Centre, Stockholm University.

- The MSP itself is not involved in the creation of restrictive ocean zones, although some such zones are legislatively created. If such a zone is created by any legislation or policy, the MSP is tasked with its establishment and ensuring that it will have a very minimal impact on, or conflict with, other uses.
- Australian Government Great Barrier Reef Marine Park Authority, Great Barrier Reef Outlook Report 2009 (in brief), at 1.
- 2009 Intergovernmental Agreement Between Australian Federal Government and Oueensland Government, at 3.
- Supra, note 20, at 1.
- Australian Government Great Barrier Reef Marine Park Authority, 2006 23 Review of the Great Barrier Reef Marine Park Act, at 8.
- Supra, note 21, at 3.
- 25 Ibid
- 26 Ibid.
- 27 Ibid.
- 28 *Ibid.*, at 2. It was included in the list as an outstanding example that represents major stages of earth's history; an outstanding example of significant ongoing ecological and biological processes in the evolution of marine ecosystems and containing the most important natural habitats.
- Kenchington, R.A. and Day, J.C. (2011). "Zoning, a fundamental cornerstone of effective Marine Spatial Planning: lessons learnt from the Great Barrier Reef, Australia". Journal of Coastal Conservation 15(2): 271-278, at 275-76.
- Supra note 20 at 1
- 31 Supra, note 3, §2A(1).
- Ibid., §2A(2)(a). 32
- 33 Ibid., §2A(2)(c).
- Ibid., §2A(2)(b). 34
- 35 Ibid., §2A(3).
- Ibid., §3AA(a).
- 37 Ibid., §3AB.
- 38 Ibid., §3(1).
- 39 Ibid., §3(1).
- 40 Ibid., §10(4)(a).
- 41 Ibid., §11(1).
- 42 Ibid., §7.
- 43
- Ibid., §§43 and 44. Every member or special member of the Australian Federal 44 Police is an ex officio inspector under the EPBC Act.
- 45 Ibid., §31.
- Ibid., §32. 46
- 47 Ibid., §32A.
- 48 Ibid., §32B.
- 49 Ibid., §35. 50
- Ibid., §36(1). 51 Ibid., §37A.
- Ibid., §37AA(2).
- 53 Ibid., §37AA(3).
- 54 Ibid., §38AA(1)(a).
- 55 Ibid., §38AB(1).
- 56 Ibid., §§38BA, BB, BC and BD.
- 57 Ibid., §38BA(1)(c).
- 58 Ibid., §39A.
- Ibid., §S39Y.
- 60 Ibid., §39W.
- 61 Ibid., §39X.
- Ibid., §39ZA. 62
- 63 Ibid., §39ZB.
- 64 Ibid., §39ZI.
- 65 Ibid., Part VII, Division 1.
- 66 Ibid.
- 67 Ibid., §53.
- 68 Ibid., §54(3).
- Ibid., §59A.
- 70 Ibid., §59F.
- 71 Ibid., §59L. 72 Ibid., §61AAC.
- 73 Ibid., §64.
- 74 Ibid., §64A.
- 75 Ibid., §65.
- Day, J. (2002). "Marine Park Management and Monitoring: Lessons for Adaptive Management from the Great Barrier Reef". In: Bondrup-Nielsen, S., Munro, N.W.P., Nelson, G., Martin Willison, J.H., Herman, T.B. and Eagles, P. (Eds) Managing Protected Areas in a Changing World. SAMPA IV, Wolfville, Canada.
- 77 Supra, note 29, at 273-74.
- 78 Supra, note 23, at 5-6.
- Ibid., at 10.
- 80 Ibid
- In addition to the Marine Park Act, there are about 20 pieces of state and

Commonwealth legislation, and eight international conventions such as UNCLOS, the World Heritage Convention 1972, the Convention on Biological Diversity (CBD) 1992 that are applicable to the governance and management of the Marine Park.

- 82 Supra, note 23, at 12.
- 83 Ibid., at 162.
- 84 Ibid., at 170.
- 85 Ibid., Appendix E 193.
- Supra, note 21, at 4. 86
- Ibid., at 6. In order to ensure long-term protection and conservation of the Reef, the Intergovernmental Agreement includes five schedules (A-E) covering various aspects including climate change (Schedule D) and fishing and collection of fisheries resources (Schedule E).
- 88 Ibid at 7
- 89 Supra, note 20, at xii.
- Ibid., at 4-18.
- 91 Ibid., at ii and 20.
- 92 Supra, note 23, at 8,
- 93 Supra, note 12, at 287.
- See UNESCO-IOC Marine Spatial Planning Initiative, at http://www.unescoioc-marinesp.be/spatial_management_practice/australia_great_barrier_reef.
- 95 Supra, note 3, §35D - zoning plans are legislative instruments.
- See "Overview: The current status of the Great Barrier Reef", at http://kurrawa. gbrmpa.gov.au/corp site/info services/publications/sotr/overview/.
- Australian Government Great Barrier Reef Marine Park Authority, Part 2 of the Great Barrier Reef Marine Park Zoning Plan 2003, at 4.
- Ibid., Division 2 of Part 2.
- 99 Ibid., Part 4, at 35
- 100 Australian Gov. nment Great Barrier Reef Marine Park Authority, at http:// www.gbrmp.gov.a. 'visit-the-reef/zoning/zoning-maps.
- 101 For detain e. 8. /a, note 3, §66. 102 S109 f the a stralian Constitution. 103 Supra, 16.29, at 273.

- 104 bid.
- 1 ., at 271. 105
- For example, at an international level, UNCLOS and the CBD contain provisions on MSP. UNCLOS made a significant contribution to the regulation of eral regimes and provided a framework for an orderly and rational conduct of historic and modern maritime activities. It has codified various maritime zones such as Territorial Sea, Contiguous Zone, Continental Shelf and the Exclusive Economic Zone for the use and allocation of marine resources and spaces and indirectly contributed to MSP. Although UNCLOS has been considered as a bare framework for the marine and coastal management, as it does not provide a comprehensive management system of MSP, it provides a basis for MSP as it requires nation States to exploit marine resources as well as managing them with sovereign rights in the EEZ.
- 107 Supra, note 20, at 14.
- 108 Ibid at 18
- 109 Ibid., at 20.
- 110 Supra, note 23, at 4.
- 111 Daily News and Analysis (DNA), at http://www.dnaindia.com/scitech/1748468/ report-australia-admits-to-neglecting-great-barrier-reef-for-decades.
- 112 Ibid.
- 113 Nordic Council of Ministers. (1996). "The Effectiveness of Multilateral Environmental Agreements: A Report from a Nordic Project". Tema Nord 1996:
- 114 Victor, D.G. et al. (1998). "Introduction and Overview". In: Victor, D.G. et al. The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice, at 4. Laxenburg: International Institute for Applied Systems
- 115 Beyerlin, U. et al. (1997). Law Making and Law Enforcement in International Environmental Law, at 99. Umwelt Bundes Amt.
- 116 Hassan, D. (2006). Protecting the Marine Environment from Land-Based Sources of Pollution: Towards Effective International Cooperation, at 66. Burlington VT: Ashgate.
- 117 UNEP. (2000). "Report of the Meeting of Senior Government Officials Expert in Environmental Law to Prepare a Programme for the Development and Periodic Review of Environmental Law for the First Decade of the Twenty-first Century". Nairobi, October 2000, Annex I, at 5-10.
- 118 Merriam, D.H. and Benson, J.A. (1993). "Identifying and Beating a Strategic Lawsuit Against Public Participation". Duke Environmental Law and Policy Forum 3: at 21.
- 119 Supra, note 116, at 67.
- Gouilloud, M.R. (1981). "Prevention and Control of Marine Pollution". In: Johnston, D.M. (Ed.) The Environmental Law of the Sea, at 245. Berlin: E Schmidt.
- 121 Supra, note 3, §5(1).
- 122 Supra, note 12, at 266.
- 123 McLaughlin, M. (1987). "Learning from Experience: Lessons from Policy Implementation". Educational Evaluation and Policy Analysis 9: 171-78.
- 124 Supra, note 20.

South Africa

Mining and Legal Measures

by Michael Kabai*

There are no easy or simple solutions to the environmental problems and challenges we face today. We will never have scientific certainty or agreement about what we should do because science provides only probabilities, not certainties, and advances through continuous controversy. What is important is not that scientific experts disagree but what they generally agree on: the scientific consensus on concepts, problems, and possible solutions. Despite considerable research, we still know relatively little about how nature works at a time when we are altering nature at an accelerating pace.¹

The mining, processing and use of the resources of the earth's crust require enormous amounts of energy, and often cause land disturbances, erosion, and air and water pollution. After extraction from the ground, many resources must be separated from the other matter, a process that can pollute the air and water. Ore typically contains two parts: the ore mineral, which contains the desired metal, and the gangue, or waste mineral material. Beneficiation, or separation of the ore mineral from the gangue, produces waste called tailings. Mining can affect the environment in several ways. Most noticeable are scarring and disruption of the land surface and the ugliness of spoil heaps and tailings. Underground fires in coal mines cannot \www.s be put out. Land above underground mines collapse or subsides, causing roads to buckle, houses to tilt, it iroad tracks to bend, sewer lines to crack, gas main, to break, and groundwater systems to be disrupted In addition, spoil heaps and tailings can be eroded by wind and water. The air can be contaminated with dust are exic substances, and water pollution is a serious concern.

Alongside the rising concern about local environments, people have become increasingly aware that the planetary environment itself is being affected by industrial and urban pollution. For instance, the clearly documented damage to the ozone layer has shown that international action to protect the environment is needed. This is reflected in the Montreal Agreement of 1989, as a result of which environmental concerns have become both internationally and domestically significant in every mining activity. States have a duty to try to strike a balance between economic development and protection of the environment. This balancing act is not always easy, especially for developing States like South Africa. The very poorest countries, such as some Central and West African nations, have suffered greatly in recent years from loss of value of their key cash crops, as the price of several agricultural commodities

has steadily dropped. For this reason, their governments are agreeing in some cases to exploitatively under-priced mining deals and to the siting of toxic waste disposal facilities and recycling plants in their countries, even when such facilities have been refused planning permission in advanced industrial countries.²

Principle 8 of the Stockholm Declaration of the United Nations Conference on the Human Environment 1972 emphasised that "economic and social development is essential for ensuring a favourable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life". In escence, this principle simply stresses the States' sover ign light to exploit their own resources, as more directly expressed later in Principle 2 of the Rio Declaration, adopted at the United Nations Conference on Fn iron nent and Development in 1992, which noted that States have "the sovereign right to exploit their ow resources pursuant to their own environmental and developmental policies", and Principle 3, which provided that "the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations". The correct balance between development and environmental protection is now one of the main challenges facing the international community and reflects the competing interests posed by the principle of State sovereignty on the one hand and the need for international cooperation on the other. It also raises the issue as to how far one takes into account the legacy for future generations of activities conducted at the present time or currently planned.3

Principle 13 of the Rio Declaration refers both to national and international activities in respect of environmental damage and injury, by stating the following: States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for advance effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.⁴

The Energy Charter Treaty signed at Lisbon in 1994 by the Organisation for Economic Co-operation and Development with the Eastern European States and Commonwealth of Independent States refers to environmental issues in the context of energy concerns in a less-than-robust manner. Article 9 notes that Contracting Parties "shall strive to minimize in an economically efficient manner harmful environmental impacts". In so doing, Parties are to act "in a cost-effective manner". Parties are to "strive to take precautionary measures to

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prevent or minimize environmental degradation" and agree that the polluter should "in principle, bear the cost of pollution, including transboundary pollution, with due regard to the public interest and without distorting investment in the energy cycle or international trade".⁵

The issue of how to tackle international environmental problems is therefore of central importance. Such problems are rarely caused deliberately, as conscious acts of policy. Mostly they are the results of ignorance or the by-products of widely accepted economic and social activities and traditional practices. Thus, an increased scientific understanding of our environment and of human interdependence with it is essential if any strategy is to be able to tackle these problems. Increased knowledge will not improve the situation, however, unless it is associated with changes in economic and social practices. This paper will consider some of the global and domestic environmental legal measures affecting South African mining activities.

International Environmental Legal Measures

Environmental law in South Africa is composed of both domestic law and international law principles. The 1996 Constitution of the Republic of South Africa emphasises the critical role of international law in South Africa. In Section 231, the Constitution divides international agreements into two categories, described in Sections 231(3) and 231(2). Section 232 of the Constitution stipulates that "customary international law is law in the Republic unless it is inconsistent with the Constitution or an Act of Parliamert". Furthermore, "when interpreting any legislation, ver court must prefer reasonable interpretation of the legislation that is consistent with international law ver any alternative interpretation that is inconsistent with international law". Almost all African countries have signed and ratified the African Charter of Human and Peoples' Rights (the "African Charter"). Article 24, the African Charter declares that "all peoples shall have the right to a general, satisfactory environment favourable to their development". 8 Any mining activity by South Africa must be consistent with the spirit of the provision of this Article. If not, South Africa will be in contravention of the Charter and may be brought either before the African Commission on Human and Peoples' Rights or the African Court on Human and Peoples' Right for contravening the provision. Other African Union instruments, such as the African Convention on the Conservation of Nature and Natural Resources, may also apply, depending upon the type of mining conducted.

With regard to offshore mining or deep-sea mining, the provisions of the United Nations Convention on the Law of the Sea (UNCLOS) must be considered. South Africa became a State Party to UNCLOS on 23 December 1997. At Article 204, UNCLOS provides that States should "observe, measure, evaluate and analyse by recognized scientific methods, the risks or effects of pollution on the marine environment" and in particular "shall keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine

environment". Reports are to be published. Under Article 206, when States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of, or significant and harmful changes to, the marine environment, "they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of such assessments".9 These provisions tie in with Principle 15 of the Rio Declaration which states that "in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". In addition to these instruments, the precautionary principle is also reflected in the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, the Convention on Biological Diversity (CBD), 1992 and in the UN Framework Convention on Climate Change (UNFCCC), 1092.

Another Fixciple of customary international law is that of "sustaina" le l'évelopment". The CBD in its preamble and Arti les 1, 8, 11, 12, 16, 17 and 18 refers to the notion of "ustainable use" and the UNFCCC declares in Article 3(4) "hat "the parties have right to, and should, promote sustainable development".

The "polluter pays principle" is another general principle of international environmental law. Relevant to this article, it has been referred to in the International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 and the Convention on the Transboundary Effects of Industrial Accidents, 1992.

Habitat destruction resulting from the expansion of human populations and activity is the primary cause of the loss of biodiversity. There are several international environmental legal measures intended to address habitat destruction, such as the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), the 1971 Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention) and the 1979 Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

The World Heritage Convention recognises and protects "cultural and natural heritage". South Africa ratified the World Heritage Convention on 10 July 1997. South Africa ratified the Ramsar Convention, which attempts to safeguard wetlands (with an emphasis in Article 2(2) on protecting those areas of "international importance to waterfowl"), without reservations on 12 March 1975. The Bonn Convention, to which South Africa has been a Party since 1991, covers the entire spectrum of animal species including birds, mammals, reptiles and fishes and it requires States' cooperation to protect migratory species.

International regimes are rarely constructed in one grand agreement; they are built over time and are constantly evolving. As with the river commissions for the Rhine and Danube, many international organisations now deeply involved with environmental policy started life primarily to facilitate and regulate international trading and economic activities. For example, the International Maritime Organization (IMO) was originally formed in 1948 to facilitate international shipping, promote safety and facilitate navigation. It was widely regarded as a "ship-owners club". However, when the IMO was given responsibility for implementing the 1954 Convention for the Prevention of Pollution of the Sea by Oil, a landmark treaty for marine pollution, its role in protecting the marine environment intensified, as concern grew about maritime pollution in the 1960s.¹⁰

National Environmental Legal Measures

A number of domestic environmental legal measures also apply to mining activities in South Africa, such as the National Water Act, 1998, National Forest Act, 1998, Physical Planning Act, 1999, Marine Living Resources Act, 1998, Nuclear Energy Act, 1999 and others which, although equally important, will not be discussed in this paper. The following sections will focus mainly on the Constitution, 1996, National Environmental Management Act, 1998 and Mineral and Petroleum Resources Development Act, 2002.

The Constitution of the Republic of South Africa, 1996

The Constitution of the Republic of South Africa is an important environmental legal measure affecting all mining activities in South Africa. Section 2 of the Constitution stipulates that "[the] Constitution is the supreme law of the Republic; law or conduct inconsistent with it is in ylid, and the obligations imposed by it must be fully 'eq''. Furthermore, as Section 24 states,

Everyone has the right:

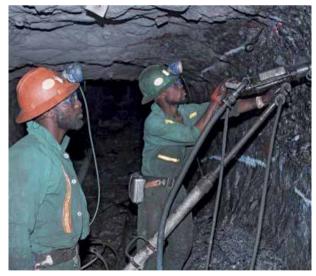
- (a) to an environment that is not harmful to their health or well-being; and
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that
 - (i) prevent pollution and ecological degradation;
 - (ii) promote conservation; and
 - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.¹¹

Section 24 is of critical importance to environmental law in South Africa and definitely of potential use to those suffering from environmental injustice. Insofar as environmental justice is concerned, this environmental right could be used to bring to a halt any State action or decision which threatens or harms the environment in a manner that detrimentally affects any person's health or wellbeing.

For this purpose, "environment" is a composite and inclusive notion that consolidates more specialised concepts such as "nature conservation", "protection", "pollution" and others. The composite nature of this right is apparent from the fact that a healthy environment is linked under Section 24 of the Constitution to the issues of pollution, ecological degradation, and conservation.¹²

In particular, Section 24(b) accommodates some of the concerns expressed by experts in this field. It imposes a general duty on the State to protect the environment, and it is not essential to prove that activities affecting the applicant's environment result in harm to his or her health or wellbeing. The reference to "present and future generations" introduces the important concept of sustainability into South African constitutional law. 13 There is a positive obligation on the State to institute a regulatory framework to effect the purposes set out in sub-paragraphs (i)-(iii) of Section 24(b). In this regard, the State must at all times act in accordance with the circumstances prevailing in each case in a reasonable manner. Clearly, however, a more exacting standard is necessary when the measure is related to the prevention of pollution and ecological degradation. Sub-paragraph (iii) expressly introduces the important principle of "sustainable development" and makes the connection between environment and development.¹⁴

In 1999, the Supreme Court of Appeal in *Mineral Development, Gauteng Region and Sasol Mining (Pty)* Ltd v. Save the v. al Environment and Other¹⁵ stated that "[o]ur Co st tution, by including environmental rights as fundation, it justiciable human rights, by necessary implication requires that environmental considerations be accorded appropriate recognition and respect in the administrative processes in our country. Together with the change in the ideological climate must also come a change in our legal and administrative approach to environmental concerns". ¹⁶



Courtesy: South Africa Resources

Section 34 of the Constitution states that "[e]veryone has the right to have any dispute that can be resolved by the application of law decided in a fair public hearing before a court or, where appropriate, another independent and impartial tribunal or forum". This provision is critical especially where one contemplates the enforcement of an environmental law or right in South Africa. By using the word "everyone", this provision states that any person irrespective of status can have their rights enforced. There has been much debate over the application of environmental rights. It is, however, quite clear that these rights apply

between the State and citizens. However, the question is whether the right(s) apply between two citizens. On this point, the courts appear to have accepted that environmental rights can apply between one person and another person.¹⁸

The Bill of Rights, including the environmental right, applies to all law and is binding on the legislature, the executive, the judiciary and all organs. As a result, if the State, in any of its forms, is responsible for an infringement or threatened infringement of the environmental right, that right may be used in order to remedy the situation. As pointed out above, these provisions appear to be binding upon any natural or juristic person.

Finally, Section 36 of the Constitution, commonly known as the "limitation clause", is applicable to Section 24 as to all other rights contained in the Bill of Rights. Therefore, it is possible that a situation may arise in which an environmental right is encroached upon by some mining activity and yet that encroachment is justifiable in terms of the Constitution. For example, the siting of a disposal site might be challenged on the grounds that it is a threat to the health or wellbeing of neighbours, but the challenge could be defeated on the basis that the site is the only suitable one taking into account factors like geology and economics, bearing in mind that it would serve the interests of large numbers of people.¹⁹

The National Environmental Management Act (NEMA), 1998

Framework legislation is legislation that "aims to define overarching and generic principles in terms of which sectoral-specific legislation is embedded, as we. as to enhance the co-operative environmental governance amongst fragmented line ministries".20 The Soy th An. can legislation which most conforms to this descript. T is the National Environmental Management Act 107 of 1998, which has come to be known by its acro. m, NEMA. NEMA implements Section 24 of the institution and is, therefore, very important among environmental legal measures affecting mining activities in South Africa. The preamble to NEMA refers specifically to the environmental right in Section 24 of the Constitution, and makes clear that NEMA is aimed at giving effect to it at a framework level. The purpose of NEMA, according to the long title, is as follows:

To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of State; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.

In the first significant case in which NEMA was considered, *Minister of Public Works and Others v. Kyalami Ridge Environmental Association and Another*,²¹ the Constitutional Court suggested that NEMA revolves around environmental implementation and management plans, ignoring the fact that these plans are among many

components of the Act (which the Court describes as "various other provisions") and not necessarily more important than the other components. The Court went on to find that the environmental management principles in Section 2 of NEMA are not directed at "controlling the manner in which organs of State use their property". In the opinion of the author, it could have been that the Court deliberately misinterpreted NEMA in order to ensure that its decision was the socially and politically appropriate one in the circumstances. While one may expect less from a single judge in the Durban and Coast Local Division, one still expects such a judge to know what the law is or ought to be.

Regarding historic pollution, it was held in *Bareki NO* and Another v. Gencor Ltd and Others²² that Section 28 of NEMA does not operate retrospectively, a holding that flies in the face of earlier academic opinion to the contrary.²³ The decision fails to take proper account of the wording used ("has caused") in Section 28(1), and fails to recognise that pollution is an on-going process. Someone who gives rise to a state of affoirs a at continues polluting into the future (e.g., a toxic caste dump) clearly "causes" pollution until the polluting cause is made safe. Even if one ignores the words "I is caused", a polluting activity originating before the Act was promulgated that continues to pollute after the Att came into effect would be covered by Section 28.

Another case worth mentioning in this connection s the Hichange Investments (Pty) Ltd v. Cape Produce Co (Pty) Ltd²⁴ case. This case deals with the slack enforcement of the Atmospheric Pollution Prevention Act (APPA) and the use of Section 28 of NEMA with the view to countering environmental pollution. Section 28 establishes an environmental duty of care for all activities that significantly impact, have impacted, or may impact on the environment, including activities in the mining sector. In Hichange Investments, the complaining company was suffering from pollution caused by the respondent tannery, specifically from hydrogen sulphide pollution, causing a foul odour and corrosion of vehicles being stored on the complainant's premises. The complainant had been trying for a significant period of time to obtain relief through the offices of the Chief Air Pollution Control Officer (CAPCO) in the Department of Environmental Affairs and Tourism, to no real avail. Although the CAPCO had required the tannery to implement certain control measures, it had continued to extend the effectiveness of the interim registration certificate, despite the tannery's inability or unwillingness to comply with the requirements. The complainant sought the following relief:

- That the CAPCO suspend the registration certificate in terms of APPA until there was compliance with the conditions of the certificate and directives from the CAPCO;
- (2) That the provincial environment department be ordered to direct the tannery to comply with Section 28 of NEMA by investigating, evaluating and assessing the impact of gases emitted from the tannery;
- (3) That the tannery be ordered to halt all activities at the tannery until it had complied fully with the

requirements set out in the directives issued by the CAPCO.

The Court refused to grant the first and third prayers against CAPCO since the level of pollution had not been proved and the Court was reluctant to usurp the functions of the CAPCO in deciding whether effectively to shut down the tannery. The Court did grant the second order, despite the argument put forward by the provincial environment department that it did not have the expertise to ask for this. The Court held that the legislature had envisaged the department's playing this role and that it could not refuse to exercise this task. The Court consequently ordered an investigation in terms of Section 28(4) of NEMA. This is an important reported case in connection with the judicial enforcement of Section 28.25

Before NEMA was enacted, the Environmental Conservation Act 73 of 1989 covered this ground, but could not give effect to Section 24 of the Constitution. That is why it was clear that a new framework environmental act was required to do so. NEMA contains an extensive list of principles that "apply throughout the Republic to the actions of all organs of State that may significantly affect the environment", noting that they must also meet the following criteria:

- a. ... apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the vasic needs of categories of persons disadvantate asy unfair discrimination;
- b. serve as the general framework within which environmental management and implementation plans must be formulated;
- c. serve as guidelines by reference to which any organ of State must exercise any function when taking any decision in terms of the Act or any statutory provision concerning the protection of the environment; and
- d. guide the interpretation, administration and implementation of the Act, and any other law concerned with the protection or management of the environment.²⁶

There is no doubt that NEMA is an important domestic environmental legal measure that affects mining activities in South Africa.

The Mineral and Petroleum Resources Development Act (MPRDA), 2002

The MPRDA is an important piece of legislation enacted to regulate certain mining activities in South Africa, including offences like mining without a permit,²⁷ and mining without an approved environmental management programme.²⁸ The MPRDA is the final product of a number of documents and processes, namely the 2000 Draft Minerals Development Bill, the Draft Mineral and Petroleum Resources Development Bill (2002) and a

consultative process between industry and the State. The MPRDA was signed by the State President on 3 October 2002 and commenced operation on 1 May 2004.

To a degree, the MPRDA is administered by two departments (of Minerals and of Energy), which used to be one department.²⁹ Its preamble reinforces the country's commitment to protect the environment, by affirming "the State's obligation to protect the environment for the benefit of present and future generations, to ensure ecologically sustainable development of mineral and petroleum resources and to promote economic and social development". One of the objectives of the MPRDA is to give effect to Section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.

Chapter 4 of the MPRDA deals with the processes for the application and granting of reconnaissance, prospecting and mining rights. One of the prerequisites for the granting of a prospecting right is that the prospecting will not result in unaccep, ble pollution, ecological degradation or damage to the environment. As a result, an applicant for a proceeding right must submit an environmental management plan. The same prerequisite applies in respect of the granting of a mining right, application for which must be accompanied by an Environmental Impact Assessment (EIA) and environmental management programme. An applicant for a mining permit is also required to submit an environmental management plan.

The national environmental management principles, as well as the EIA processes, in NEMA apply to all prospecting and mining operations and any matter relating to such operations and serve as guidelines for the interpretation, administration and implementation of the environmental requirements of MPRDA.³⁴ Any prospecting or mining operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of prospecting and mining projects in order to ensure that exploitation of mineral resources serves present and future generations.³⁵ The State, as the custodian of the nation's mineral and petroleum resources, must ensure the sustainable development of these resources "within a framework of national environmental policy, norms and standards while promoting economical and social developments".36

Section 45(1) of the MPRDA provides that if any prospecting, mining, reconnaissance or production operations cause or result in ecological degradation, pollution or environmental damage which may be harmful to the health or wellbeing of anyone and require urgent remedial measures, the Minister may direct the holder of the relevant right, permit or permission to take the following actions:

- (a) investigate, evaluate, assess and report on the impact of any pollution or ecological degradation;
- (b) take such measures as may be specified in such a directive; and
- (c) complete such measures before a date specified in the directive.

If the holder fails to adhere to the directive, the Minister may take such measures as may be necessary to protect the health and wellbeing of any affected person or to remedy ecological degradation and to stop pollution of the environment. Before the Minister implements any measure, he or she must afford the holder an opportunity to make representations to him or her. In order to implement the measures, the Minister may, by way of an ex parte application, apply to a High Court for an order to seize and sell such property of the holder as may be necessary to cover the costs of implementing such measures. In addition to a potential High Court application, the Minister may use the funds appropriated for that purpose by Parliament to implement such measures fully. The Minister may recover an amount equal to the funds necessary to implement the measures fully from the holder concerned.³⁷

Conclusion

It is becoming increasingly evident that many environmental disturbances have global consequences and that some, such as human-induced climatic change, may affect future generations. These concern us all. Nevertheless a purely emotional response may lead to hasty decisions, wrong priorities, the waste of resources, and possible neglect of more important issues. It can also be exploited: "doom and gloom" approaches and "shockhorror" descriptions sell newspapers, and "environmentally friendly" and "green" may be used to describe products which are not necessarily so. While this emphasis makes people aware that there are problems, there is also the danger that those who have not considered a problem in depth, nor in proper perspective, may exect the wise pressures.

A concerned but enquiring approach is likely to be of greater benefit in the long term and make for suitably sensible precautions. With any environmental problem, there are almost always a number of contributing causes whose interactions and feedbacks make it difficult to identify the most effective course of action and predict the consequences of intended remedies with any certainty. Whilst we cannot expect to appreciate all the feedback mechanisms between earth's organisms and their environment, the Gaia hypothesis³⁸ suggests that, overall, they enable our global system to function for its long-term benefit. If so, it is possible that our continued disturbances to our environment may interact to our detriment. It is tempting for a layman to accept the opinion of a certain investigator, researcher or publicist as established fact; yet, simply because environmental issues are apt to be complex, experts frequently disagree about the seriousness of a hazard, its potential consequences, and the best way to counter it.39

Based on the foregoing examination, it is clear that mining activities in South Africa will have to be in line with some of the international and domestic environmental legal measures affecting such activities (such as UNCLOS, the African Charter, the Ramsar Convention, the Bonn Convention, the Constitution, NEMA and MPRDA) in order to be regarded as acceptable or legal.

Notes

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- 3 Shaw, M.N. 2003. "International Environmental Law". In: Shaw, M.N. *International Law. Fifth edition.* Cambridge: Cambridge University Press.
- Ibid., at 1.
- 5 The Energy Charter Treaty (signed in December 1994 and entered into force in April 1998; to date the Treaty has been signed or acceded to by 51 States, the European Community and Euratom), at http://www.encharter.org/index.php?id=28.
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 Constitution of the Republic of South Africa (Act No. 108 of 1996), at http://www.acts.co.za/constitution_of_the_republic_of_south_africa_1996.htm; see
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- 8 Organisation of African Unity/African Union Treaties and Status List, at http://www.au.int/en/treaties
- 9 Bernaerts, A. 2006. Bernaerts' Guide to the 1982 United Nations Convention on the Law of the Sea: Including the text of the 1982 UN Convention and Agreement concerning Part XI of 1994, at 224–225. Reprint of 1988 Edition. Bloomington IN: Trafford Publishing.
- 10 Supra. note 6.
- 11 De Waal, J., Currie, I. and Erasmus, G. 2001. *The Bill of Rights Handbook* (in association with L. for Human Rights and Law Society of South Africa), Fourth Edition. Capt. "own: J. ata and Co. Ltd.
- 12 Section 24(a, apart from minor differences, is identical to the corresponding provision (Section 2), in the 1993 Interim Constitution of the Republic of South Africa.
- 13 Dolis, Cheadle, H. and Haysom, N. 1997. Fundamental Rights in the Constitution: Commentary and Cases. A Commentary on Chapter 3 on Fundamental Rights.

 'the 1993 Constitution and Chapter 2 of the 1996 Constitution, at 256–263.
 Cape Town: Juta and Co. Ltd.
- 14 Devenish, G.E. 1998. A Commentary on the South African Constitution, at 7–68. Durban: Butterworths.
- 15 Director: Mineral Development, Gauteng Region and Sasol Mining v. Save 1999 (2) SA 709 (SCA).
- 16 *Ibid.*, para. 20.
- 17 Supra, note 7.
- 18 See www.paralegaladvice.org.za, "Environmental Law/The Constitution".
- 19 Kidd, M. 1999. "The National Environmental Management Act and public participation". *SAJELP* 6: 21–31.
- 20 Du Plessis, W. and Nel, J. 2001. "An evaluation of NEMA based on a generic framework for environmental framework legislation". SAJELP 8(1): 1–38, at 1–2.
- 21 The Minister of Public Works and Others v. Kyalami Ridge Environmental Association and Another, 2001 (3) SA 1151 (CC).
- 22 Bareki NO and Another v. Gencor Ltd and Others 2006 (1) SA 432 (T).
- 23 Soltau, F. 1999. "The National Environmental Management Act and liability for environmental damage". SAJELP 6: 33–41; Glazewski, J. 2005. Environmental Law in South Africa. Second Edition, at 150. Durban: LexisNexis Butterworths.
- 24 Hichange Investments (Pty) Ltd v. Cape Produce Co (Pty) Ltd t/a Pelts Products and others 2004 (2) SA 393 (E).
- 25 Kidd, M. Environmental Law Sibergramme 3/2004, at http://www.siberink.co.za/c85/Sibergrammes--Journals.aspx.
- 26 NEMA, Section 2(1).
- 27 MPRDA, Section 5(4)(b), read with Section 98(a)(i).
- 28 Ibid., Section 5(4)(a), read with Section 98(a)(i).
- 29 Paterson, A. and Kotze, L.J. 2009. Environmental Compliance and Enforcement in South Africa: Legal Perspectives, at 84–85. Cape Town: Juta and Co. Ltd.
- 30 MPRDA, Section 17(1)(c).
- 31 *Ibid.*. Section 16(4)(a).
- 32 *Ibid.*, Section 22(4)(a).
- 33 Ibid., Section 27(5).
- 34 *Ibid.*, Section 37(1)
- 35 *Ibid.*, Section 37(2). 36 *Ibid.*, Section 3(3).
- 37 Strydom, H.A. and King, N.D. (Eds) 2009. *Fuggle and Rabie's Environmental Management in South Africa*, at 548–552. Second edition. Cape Town: Juta and Co. Ltd
- 38 The theory, put forward by James Lovelock, that living matter on the earth collectively defines and regulates the material conditions necessary for the continuance of life. The planet, or rather the biosphere, is thus likened to a vast self-regulating organism; see www.wikipedia.org/wiki/Gaia hypothesis.
- 39 Money, D. 1994. Environmental Issues: the Global Consequences, at 1. London: Hodder & Stoughton.

REFERENCES TO OTHER TOPICS

UN

 Post 2015 development agenda
 The UN Secretary General has transmitted to the General Assembly a report entitled "A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development". It is the key outcome document
 of the High-level Panel of Eminent Persons on the Post-2015 Development Agenda. Report: http://www.un.org/ga/search/ view_doc.asp?symbol=A/67/8 90&referer=http://www.google.de/url?sa=t&Lang=E. (WEB)

- Marine environment

The Co-Chairs of the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects have presented the report of their work to the General Assembly. Report: http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N13/334/83/PDF/N1333483.pdf?OpenElement. (WEB)

ICJ

 Aerial Spraying
 The International Court Of Justice (ICJ) has removed from its list of cases the 2008-filed case, "Aerial Herbicide Spraying and the country of the (Ecuador v. Colombia)", which alleged that toxicity from aerial spraying in Colombia was causing harm in Ecuador. The action follows receipt of a letter from Ecuador, notifying the ICJ of an Agreement between the Parties dated 9 September 2013 "that fully and finally resolves all of Ecuador's claims against Colombia" in the case, and indicating its wish to discontinue the proceedings. Order: http://www.icj-cij.org/docket/files/138/17528.pdf.

Costa Rica/Nicaragua Cases

The ICJ has denied the request of Costa Rica for a modification of interim measures ordered in the joined Costa Rica v. Nica agua and Nicaragua v. Costa Rica cases. By a vote of 15-2, til finds "that the circumstances, as they now present them, lives to the Court, are not such as to require the exercise of a power to modify the measures indicated in the Order of & March, 2011", reiterating that "[the Period of Court of Co reiterating that "[the Parties] refrain from any action" hich might aggravate or extend the dispute before the Court or make it more difficult to resolve". Costa Rica had requested reconsideration of the ICJ's order limiting its future actions send. The personnel into the area, based on the large number of N raquans it has noted in the area, which are not, according to Nicaragua, governmental officials or project developers, but rather private organisation members, undertaking conservation activities; Press Release: http://www.icj-cij.org/docket/files/150/17482.pdf.

Nicaragua/Colombia Dispute Continues The ICJ's final decision (EPL 43(1) p 22-25) in the maritime

dispute between the governments of Nicaragua and Colombia has not apparently settled the matter. While Colombia has issued a statement that it no longer recognises the ICJ's jurisdiction, Nicaragua has filed a new claim seeking a ruling on the exact boundary between the two countries' maritime areas, reportedly in preparation for its commencement of petroleum drilling in the area. Colombia's president says that he will also pull out of the Bogota Treaty on which the ICJ's decision was based. It has specifically stated that, as a legal matter, the ICJ decision "cannot be implemented". Reported: http://www.icj-cij.org/ docket/files/154/17530.pdf; http://www.bbc.co.uk/news/world-latin-america-24120241; and http://www.bbc.co.uk/news/worldlatin-america-20533659.

ITLOS to Issue EEZ Fisheries Advisory Opinion

The International Tribunal for the Law of the Sea (ITLOS) has agreed, for a second time, to exercise its advisory powers, acquiescing to a request for an advisory opinion, this time from the Sub-Regional Fisheries Commission (comprised of West African coastal States), to address the respective rights and responsibilities of flag States with regard to flagged fishing vessels fishing in another country's exclusive economic zone (EEZ). It has requested that interested UNCLOS State Parties submit comments or information on these questions by 29 November

2013. Order: http://www.itlos.org/fileadmin/itlos/documents/cases/case_no.21/C21_Ord_2013-2_24.05_E.pdf .

IRENA: Off-Grid Renewable Energy

The International Renewable Energy Agency (IRENA) has published the key findings and recommendations of the International Off-Grid Renewable Energy Conference (IOREC). Recommendations for policy-makers: http://www.irena.org/DocumentDownloads/Publications/IOREC_Key%20Findings%20 and%20Recommendations.pdf. (WEB)

Africa Food Security Conference
The First Africa Food Security Conference was held in Nairobi,
Kenya in August, spurred by memories of the severe droughts
experienced in the Sahel in 2012 and in the Horn of Africa in 2011, coupled with the realisation that Africa's population is expected to constitute about 23 percent of the global population by 2050. IISD meeting briefing: http://www.iisd.ca/food/afsc1/ brief/afsc1 brief.pdf.

International Conference on Small Island

Developing States STATE STATE THE WOY I'S small island developing states (SIDS), numerically the overwhell on majority of UN Member States, recently held its ard international could be taken by all countries" on issues of concern. Outcome document: http://www.sids2014.org/content/ dc cuments/265Barbados%20outcome.pdf.

USA: Climate Change Plan proposed
In his June climate action plan, President Obama proposed
educing the amount of carbon dioxide emitted by the national power plants, investing in clean energy technology, as well as limiting warming chemicals and further efforts relating to the "Montreal Protocol". The author of this item urges all parliamentarians to join this very necessary course of action and no longer delay taking action on environmental matters. Reported: http://www.nytimes.com/2013/08/02/opinion/a-republicancasefor-climate-action.html?_r=0. (WEB)

Japan: Fukushima Continuing Issues

Two years and five months after the nuclear disaster, Greenpeace has reported that 300 tonnes of highly contaminated water have escaped from storage tanks at the nuclear facility site in Fukushima, Japan – a condition which the government has categorised as a "level 3" (serious) incident. Other commentators, stating that scientifically radiation has little impact on seawater environments and that the large amount of spillage is quite small when compared with the amount of water in the ocean, have dismissed the event as a matter of small concern. Reported: http:// greenpeaceblogs.org/2013/08/23/worst-incident-at-fukushimafor-two-years/.

ENB seeking funding

Addressing all recipients of the Earth Negotiation Bulletin (ENB), the Vice President of the International Institute for Sustainable Development explained the ENB's vital coverage and is seeking new funding partners to continue its important work. Reported: http://www.mail-archive.com/enb@lists.iisd.ca/msg00490.html. (WEB)

First African Government-backed REDD+ **Project Goes Operational**

The Wildlife Conservation Society reports that carbon credits generated from protecting thousands of hectares of endangered rainforest in northeastern Madagascar have now been certified for sale. This is the first African project under the Reducing emissions from deforestation and forest degradation (REDD+) program of the international climate-change framework to reach this stage. See Butler, R.A. 19 Sept.2013 "Credits from first African governmentbacked REDD+ project go on sale", http://news.mongabay.com/2013/0917-makira-carbon-madagascar.html.

(All references TRY unless otherwise noted)

