Climate change, regulatory policies and regional cooperation in South Asia

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Abstract

Purpose – With climate change and environmental degradation being major issues in the world today, it is imperative for governments within a regional setting to collaborate on initiatives, harmonize their policies and develop strategies to counter threats. In South Asia, several attempts have been made to create a common framework for action in implementing synchronized policies. However, both political and technical deterrents have thwarted moves to accommodate priorities and interests of collaborating states. The purpose of this paper is to assess these issues and existing policies/strategies in selected South Asian countries and evaluate integrated plans of action based on collaborative partnerships.

Design/methodology/approach – Using a broad exploratory and interpretive approach, this paper evaluates how harmonization of environmental principles and synergies among countries can help reduce the effect of climate change and environmental hazards. Based on a review of ideas and concepts as well as both primary and secondary sources, including official records, legislation, inter-state and regional agreements, evaluation reports, impact studies (social, economic and ecological), and commentaries, it highlights several initiatives and processes geared to creating environmental protection standards and practices for the South Asian region.

Findings – Climate change has resulted in devastating impacts on people. It contributed to the proliferation of climate refugees and high incidence of poverty in South Asia. The region faces both political and technical obstacles in developing a sustainable approach to combat climate change. This is exacerbated by non-availability of information as well as reluctance to acknowledge the problem by key actors. The best strategy will be to integrate policies and regulations in the various countries of the region to develop strategic plans. The approach of prevention and protection should replace the existing emphasis on relief and rehabilitation.

Originality/value – The paper provides a critical overview of the climatic and environmental problems encountered in the South Asian region and provides pointers to resolving shared problems through the use of policy instruments for regulating the problems within the gamut of regional environmental governance. It attempts to identify solutions to offset regulatory and institutional barriers in achieving preferred results by emphasizing the need for redesigning regulatory structures and policy approaches for ecological well-being.

Keywords South Asia, Climate change, Environmental policies, Regional synergy

Paper type Research paper

Introduction

The quality of human life is contingent upon ecological conditions. A complex relationship exists between environmental factors and social-cultural dynamics and economic progress. The notion of "environment" is no longer concerned just with natural surroundings or habitats, but about a safe and stable environment, supported by a favorable climatic order, that impacts upon people's organic state and their psychological and social well-being (Bührs and Barlett, 1993; O'Lear, 2010; Sachs and Ki-moon, 2015; WCED, 1987). Environmental phenomena, either prolonged or sudden, have considerable social,

psychological and ethical impact and thus cannot be understood from economic and technical standpoints alone; rather the social dimension plays a critical role (Dillard *et al.*, 2009; Flint *et al.*, 2000; Giddings *et al.*, 2002). No wonder, environment and climate change issues have become so significant in the world today with governments, regional bodies and international organizations agonizing over ways to control the continuously deteriorating situation. Development will remain an illusion and serve limited purposes if environmental sustainability is not factored into strategies for economic growth and social advancement. In the past, overemphasis on the economic dimensions of modernization and technological progress might have provided some dividends but at the cost of creating environmental imbalance caused by ruthless exploitation of natural resources (air, water and soil) for infrastructure building, industrialization, agricultural mechanization and watershed reconstruction. Some of these meant population movement from rural to urban areas, leaving agricultural lands and water bodies largely unattended. The rapid growth of industrial plants for boosting the economy meant destruction of forests and ecosystems, reduction of biological diversity, extensive use of fossil fuels, emission of massive amounts of carbon and toxic waste, soil erosion and degradation, impeding water systems, and so on (Blewitt, 2014; Sachs and Ki-moon, 2015).

Environmental problems know no political boundaries; these transcend states and regions and thus need to be managed through interregional engagements among governments and institutions (Chasek, 2012; DeSombre, 2006; Kjellen, 2008). They need to collaborate on initiatives, harmonize policies, and develop strategies to counter environmental threats and sustain livelihoods. Indeed, the transboundary nature of environmental problems necessitates collective action involving national, regional and international institutions.

The environmental regulatory regime in each country will need to be redesigned for creating a common framework of action in implementing synchronized policies. However, there are both political and technical deterrents to accommodating idiosyncrasies, priorities and interests of collaborating countries. Mistrust among them at the political level and differences among environmentalists and specialists at the bureaucratic often hinder initiatives. Thus, for shared well-being of the region, harmonized strategies can serve beneficial purposes.

This paper will briefly assess some of the existing policies and strategies in selected South Asian countries and evaluate integrated plans of action based on collaborative partnerships, such as the South Asian Association for Regional Cooperation (SAARC) and the South Asia Cooperative Environment Programme. It will attempt to provide pointers to resolving shared problems through collaboration and harmonization within the gamut of regional environmental governance (REG). It will mainly focus on disaster management strategies and climate change solutions and the need for redesigning regulatory structures and policy approaches for ecological well-being. Based on both primary and secondary sources, including official records, legislation, inter-state and regional agreements, evaluation reports, impact studies (social, economic and ecological) and commentaries, the paper will highlight several initiatives and processes geared to creating standards and enhancing the use of policy instruments for regulating environmental and climatic problems in the region. It will attempt to identify solutions to offset regulatory and institutional barriers in achieving preferred results. This paper is about harmonizing environmental principles and about synergies among countries to reduce the effect of environmental hazards. It does not attempt a political analysis but takes a broad exploratory and interpretive approach in considering the issues.

Environmental governance and regional inter-state synergy
To make "sustainable development" a reality, an integrated and inclusive approach toward creating an environment-friendly planet has become important (Bührs, 2009; ODI/Danida, 2012).

Thus, environmental problems need to be addressed by affected nations jointly with common overarching strategies. These problems have assumed such proportions that outmoded methods in dealing with them have now been replaced by more sophisticated all-inclusive strategic responses, programs and techniques. The traditional command and control (CC) structure is no longer an option and requires replacement by state-of-the-art monitoring capabilities and reinforcement by social-political inputs, in additional to the technical, in resolving environmental issues.

The emergence of global environmental governance (GEG) is a measured response to the daunting worldwide environmental and climatic challenges that cannot be effectively handled by national state agencies without external support. Symmetry of perspectives, and measures and consensus and agreements between nations and regional organizations can sustain initiatives affecting a region or a group of neighboring countries (Evans, 2012). With efficacious environmental governance, sustainable development can be obtained (Najam *et al.*, 2006).

It is imperative for integrated environmental policy covering general issues or specific sectors to establish principles and create instruments for operationalizing them. For instance, in the European Union the principles of subsidiarity (member states free to adopt their own measures if more appropriate and sufficiently efficient than those proposed by the union), integration (incorporating legal, administrative, economic and participatory approaches and combining different sector policies), precaution (being reflexive in adopting measures based on proper risk assessment and periodic reviews) and prevention (anticipating hazards and taking measures to lessen the extent of damage) are the pillars of European environmental governance, while the instruments include regulations (uniform provisions applicable to and mandatory for all states), directives (obliging members states to follow a certain protocol regarding environmental issues), action programs (obtaining accord of members on objectives and priorities) and recommendations (aimed at creating awareness relating to environmental problems) (Musu, 2008, pp. 3-5). Other regional bodies adhere to a similar pattern in environmental governance. ASEAN follows a collaborative way of dealing with environmental problems and abjures intervention in domestic issues, emphasizes consensus-building, prefers national implementation of policies and programs, and works for harmonizing environmental standards (Koh and Robinson, 2002). For GEG to have any positive impact, policy development must have direct inputs from non-state stakeholders relevant to particular environmental concerns rather than from state institutions or regional/global bodies of formal organizations alone. Also, such policies must directly address the core causes of environmental hazards in order to obtain legitimacy and acceptability at the country level before being synchronized at the regional/global (Speth, 1995, 2002). Local problems can be responded to at the local level; however, some problems that geographically affect more than one country must be differently but appropriately addressed. This is when compatibility and convergence and, therefore, harmonization of policy instruments and strategies become essential.

Of special interest in environmental governance are disaster management strategies and climate change solutions. Disaster management is about promoting engagement of stakeholders and citizens in disaster and climate risk management practices and being proactive in coping with calamities. A few measures are important: risk identification, risk awareness, risk mitigation, risk financing and transfers, and improving institutional capacity and involve raising awareness among people in disaster-prone areas, media campaigns, hazard mapping and data collection, building prevention infrastructure and ensuring connectivity, imparting education and training of disaster management personnel, keeping local delivery mechanisms functional and active, inducing collaboration between technical experts and public administrators, forging partnerships between the state and non-governmental organizations and, most importantly, operationalizing national disaster management authorities with all the wherewithal to respond to disasters. These authorities

need to cooperate at the regional level to mitigate the adverse impact of disasters (Chandran, 2012; World Bank, 2012).

Adaptation and mitigation are key approaches in resolving climate change problems. The former is about "responses made to actual or predicted climatic stimuli or their actual or anticipated consequences" that "minimise negative impacts and possibly identify and take advantage of opportunities." On the other hand, mitigation "refers to the actual reduction in emissions of greenhouse gases" and normally "undertaken through a variety of economic, social, technological and political changes" (UNEP, 2008, p. 5). These are societal responses and complementary measures and thus need integration in addressing climate change issues. However, mitigation approaches are prioritized over adaptation measures for the former's "ability to reduce impacts on all climate-sensitive systems whereas the potential of adaptation is limited for many systems" (Fussel, 2007, p. 265). While mitigation targets all systems and its effect is global in nature, adaptation is geared to addressing problems in selected systems only and its effect is more local and regional (Fussel and Klein, 2006). Yet, in any sound environmental governance system, both are symbiotically related; mitigation must be followed by adaptation. Countries within a region need to act together to tackle disasters and climate change through concerted initiatives, sound strategies, pragmatic action plans, and effective implementation procedures.

The traditional first-generation CC instruments to monitor and regulate the environment and the effects of climate change are no longer considered efficient and effective. These are now being supplemented and complemented by more advanced instruments that are expected to provide desired results. The CC instruments may have served their purpose when the environment was a purely national matter and when direct governmental regulations and the implementation of uniform standards were regarded enough to resolve in-country problems. The second-generation instruments are said to provide "greater flexibility, efficiency and effectiveness" (Golub, 1998, pp. 4, 5). The emergence of New Environmental Policy Instruments has coincided with the shift from environmental management to environmental governance and "are now the preferred instrument of new environmental policies" in many countries. These are a combination of market- and regulation-based instruments and include: taxes/levies (on carbon emissions, air and water pollution, waste water); cost recovery and user charges; emission tradeable permits (placing a cap on the maximum level of pollution), voluntary or negotiated agreements (between state authorities and companies); and eco-labels (labeling products based on accepted environmental standards). Another very relevant instrument, especially from citizens' perspective, is free access to environmental information held by public authorities (Tews *et al.*, 2001).

Thus, in REG, multilateral engagement is vital, but bilateralism can also be complementary. For strategic reasons, bilateralism serves specific political and economic objectives. It is also argued that this is often more effective because of the serious approach both parties take in resolving a problem. There is more respect for each other's interests and more reciprocity. Multilateralism cannot always exact the total commitment of all participating parties as coordination and agreements are difficult to obtain. It is hard to negotiate, bargain and adjust with politicking obscuring them. Nonetheless, there are relative gains in multilateralism especially if there are overly dominant nations in the group seeking to pursue a specific "national" agenda (Lee, 2012, p. 2; Odell, 2000, p. 13; Powell, 2003). Inter-state synergy within an over-arching REG framework can be more effective than mere bilateralism or limited multilateralism. Synchronization of discrete national policies/strategies and relating to environmental and climate change issues and adoption of newer forms of policy instruments can create a robust REG system.

The South Asian situation
Like other regions of the world, South Asia presents challenges to REG because of the differing approach each country adopts on environmental matters, which they basically consider from unique local/national rather than broader geographical perspective. In the past, no efforts were made to synchronize policies/strategies on specific environmental issues stemming from natural disasters (floods, cyclones, earthquakes), climatic factors (drought, water scarcity, insect outbreaks, air pollution) and those not happening naturally (deforestation, bio-diversity damage, pesticide abuse, toxic and hazardous waste). The causes of the human-created problems are: rising population density, eco-unfriendly industrial and infrastructure projects, the rush for increasing agricultural yield using "Green Revolution" ideas, and forceful seizure of lakes, canals and land for urban development (Jha, 2004). While South Asia's contribution to the global greenhouse problem is marginal[1], the region will not be spared of the effects of global warming. Over the years, the intensity of droughts has increased, agricultural productivity has been threatened, large-scale flooding, earthquake and landslides have become common, the frequency of cyclones has been on the rise, salinity during the dry season in the Bengal delta has had an adverse effect on agricultural production, coastal areas have become exposed to rising sea level, while extensive sedimentation, land-use conversion, and water logging and human infiltration/habitation have altered the nature of wetlands (ODI/CDKN, 2104; SAARC, 1992a, b; Sivakumar and Stefanski, 2011).

The Intergovernmental Panel on Climate Change predicts a grim future for South Asia. Temperature trends suggest further increase in the frequency of hot days; rainfall trends indicate more frequent and heavy rainfall days; and the extent of sea level rise by the next turn-of-century "implies significantly increased risks for South Asia's coastal settlements, as well as for coastal economies, cultures and ecosystems, particularly if combined with changes in cyclone frequency or intensity" (ODI/CDKN, 2014, p. 10). Only tangible synergy among the South Asian nations can provide some respite from their effects.

A principal challenge facing the region is the fractious relation between nations that negatively impacts upon all policy areas, including the environment. Some countries take bilateral approach in dealing with environmental problems bypassing SAARC – the regional platform for multilateral cooperation and diplomacy that can play a useful role in environmental management. Regional security may come under threat if common environmental problems are not resolved through collaborative initiatives, mainly because the nexus between poverty and environment is so obvious in holistic development. In general, South Asia being an impoverished region with an average GNI per capita of approximately US$1,610 (2016 figure, with significant variations between countries), poverty impacts upon human and economic development outcomes. Climate change poses potential health risk making it imperative for regional cooperation to gain control. However, the mechanisms for environmental governance are inadequate. River water sharing problem between India and Bangladesh (and to some extent Nepal) has failed to be resolved bilaterally and the former's unilateral control over the waters of the Ganges and Teesta rivers has had huge ecological impact on the latter (Jabeen *et al.*, 2013).

Regional initiatives
SAARC[2] was initially conceived as a regional body for political and economic cooperation, but its scope has been expanded to include, *inter alia*, the preservation, protection and management of fragile ecosystems. Environmental problems are monitored, operations regulated, mitigation instruments devised. SAARC works toward adaptation and harmonization strategies. Some of the key environmental concerns were identified and the parameters and modalities for regional cooperation established as early as the late-1990s. The Environment Action Plan that emerged directed member countries to formulate their own

national environment action plans and submit reports to the SAARC Secretariat for assimilation and developing a coherent regional plan for South Asia (Goel, 2004).

Environmental issues first found prominence in 1988 when a regional plan – "SAARC-2000-A Basic Needs Perspective" – was launched. It was to "supplement national, bilateral, regional and global efforts to deal with the increasingly serious problems being faced by the region" (SAARC, 2010a). While this was considered significant, nothing remarkable happened in terms of meaningful action with a wide regional focus. Internal tensions resulting from "geopolitical imbalances" among some member countries (India vs Pakistan, in particular) retarded progress and it took twenty years for the leaders to approve the "SAARC Convention on Cooperation on Environment" to tackle problems of climate change. In the interim, some studies on environmental concerns commissioned by the body did keep experts busy but recommended measures were hardly taken seriously at the political level. One commentator remarked 16 years ago, that due to "a lack of unity and commitment to a stronger regional arrangement among its member states […] SAARC has failed to find meaningful regional cooperation on environmental issues" (Swain, 2002, p. 76). The situation has hardly changed.

Nonetheless, sporadic activities did keep the environmental issue on the regional agenda. Summits and meetings from 2008 onwards recognized the vulnerability of the region to climate change and highlighted the need for a low carbon environment, building governmental capacity to deal with environmental issues, researching and exchanging information on best practice, and taking adaptation measures (SAARC, 2008a). Action plans and "expert" group proposals stressed policy direction and steering at the regional level and aimed at creating opportunities through cooperation of member states, technology and knowledge transfer from other developing countries and supporting the work of the United Nations on climate change (SAARC, 2008b, p. 1). The critical importance of regular consultations among environmental management and pollution control agencies for a concerted response to the challenges of climate change and the integration of climate change adaptation (CCA) with disaster risk reduction (DRR) have been highlighted (SAARC, 2009, 2010b, 2011). Despite these, lack of progress in meeting targets to maintain biodiversity in the region remains because of technical and financial constraints.

Existing policies and strategies in each country
In most South Asian countries, environment-related policies have existed since the 1990s but many governments have not revised or updated them despite so much serious thinking and discussion on sustainable development taking place in recent times. Bangladesh has the most recent policy framed in 2012, while India has had a policy since 2006, Pakistan had one in place a year earlier and Sri Lanka in 2003; Nepal still follows the one it adopted in 1992. While some may have updated their approaches to environmental problems in their periodic national plans and poverty reduction strategies and have also set targets in pursuit of the MDG/SDC goals, these do not follow a common pattern as each country has its peculiar issues with diverse impacts. Their environmental management structures are also different given the nature of their governmental system – some are federal with responsibilities divided between the national government and states/provinces, while others are unitary with distinctive center-periphery relations.

The "overarching" national environmental policies (NEPs) in South Asia consolidate previous polices related to a variety of environmental issues (noted before) and some provide simple expression of goals and objectives. Taken together, the country NEPs focus on a number of issues and instruments: intergenerational equity; environment-economic-social development nexus; science-based economic and efficient resource utilization; effective ecosystem service assessment; governance norms in environmental management (accessibility, transparency, rationality, accountability, participation, predictability and

regulatory independence); polluter pay and reduce, reuse and recycle principles; environmental standards; environmental offsetting; prevention, adaptation and mitigation; decentralization; public-private partnerships; education and awareness programs (Government of Bangladesh, 2013; GOI, 2006; GOP, 2005; Government of Sri Lanka, 2003).

One of the key priorities of sustainable development, as mentioned before, is to create a nexus between poverty reduction strategies and environmental protection mechanisms through "environmental mainstreaming" for long term sustainability (SACEP, 2014). With over 40 percent of the developing world's poor living in South Asia, national development plans there need to incorporate strategies on environment and climate change with greater compulsion. Most of these plans do cover environmental issues and seek to make the growth process consistent with environmental sustainability. The 12th FYP in India has set clear goals and targets for monitoring and these cover environmental protection, climate change, forests, ecosystems and biodiversity and propose organizational, regulatory, investment and capacity building strategies. On regional cooperation, the Plan has proposed an institutional mechanism "for developing and implementing policies, laws and action plans" (Government of India, 2013, p. 214). The Bangladesh sixth FYP is also seeking to integrate "poverty, environment and climate change into the process of planning and budgeting" (GOB, 2011, p. 439) and like the Indian Plan and Sri Lankan "development framework" it focuses on control of air, industrial and noise pollution, conservation of ecosystem and biological diversities, and waste management (see SLG, 2010). Pakistan's "Poverty Reduction Strategy Paper" also aims at "combining economic and social development with environmental integrity and poverty alleviation" and environmental concerns are linked to livelihoods, people's health and their vulnerability to natural disasters (IMF, 2010, p. 107; also, IMF, 2004, p. 103). A similar approach has been adopted in Nepal and there is a clear agenda to strengthen and integrate the economic, social and environmental pillars of sustainable development (Government of Nepal, 2003; GON, 2012). Some of the South Asian countries have made appreciable progress, while others are lagging behind. Although the emission of carbon has increased marginally since the 1990s in South Asia, it is very low compared to the world average, yet continues to be threatening. The withdrawal of renewable water resources remains high compared to the developed region. On the other hand, the number of people having access to drinking water has increased significantly (UNDP, 2014).

Coping with calamities
Natural calamities are frequently occurring phenomena in South Asia. Thus, the need for a wide-ranging agenda focusing on different types of disasters is so vital.

Comprehensive framework on disaster management
The 2004 Indian Ocean tsunami raised serious concerns about disaster preparedness and post-disaster relief and rehabilitation. The response of SAARC came in the form of a "Comprehensive Framework on Disaster Management" (CFDM) for the region in 2007. It was based on the report of the "World Conference on Disaster Reduction" or the Hyogo Framework for Action (HFA), which promoted "a strategic and systematic approach to reducing vulnerabilities and risks to hazards" (United Nations, 2007, p. 1). CFDM's principal objectives are to establish and strengthen the regional disaster management system to reduce risks and to improve response and recovery management at all levels. DRR was to be mainstreamed into national development policies, coordination and cooperation pursued at all levels, and resilience infused in communities to better cope with calamities through enhanced information, warning and reporting system. It set some clear strategic goals, such as adopting a professional approach to disaster management, strengthening institutional mechanisms at the community level and empowering women, the poor and the

disadvantaged and creating national and regional networks involved in managing disasters
and post-disaster activities (SAARC, 2007, p. 2).

In order to harmonize disaster management strategies at the regional level, CFDM
proposed standardizing hazard and vulnerability assessments, achieving the appropriate
balance in PPRR (prevention, preparedness, response and recovery) programming,
developing and standardizing damage, loss and impact assessment methodologies, relief
management procedures and training curriculum for disaster management personnel.
These were about establishing common practices across the region and ensuring
compliance. But how these were to be done, was not clearly spelt out.

The SAARC Disaster Management Center (SDMC) devised a Rapid Respond Mechanism
for a coordinated approach to disaster emergencies in the region using existing
arrangements – response facilities, search and rescue personnel and equipment, emergency
medical facilities, relief material, and disaster management expertise and technology.
(SAARC, 2011). Using a participatory process with country experts providing input, SDMC
has been instrumental in formulating several protocols on different environmental issues
and strategies for CCA and mitigation (PreventionWeb, 2015).

A SAARC Agreement incorporated a range of pre-, midst- and post-disaster activities that
would form a regional "disaster management" regime to prevent natural catastrophes,
minimize their impact and restore affected areas. It emphasized joint response "to disaster
emergencies through concerted national efforts and intensified regional cooperation" (SAARC,
2011: Art 2). SDMC is guided by this resolution and a number of key relevant projects that, to
some extent, serve its purpose. One has been the creation of the "South Asian Disaster
Knowledge Network" and the other the "South Asia Digital Vulnerability Atlas" (SADVA).
The former functions as a platform for numerous stakeholders to share knowledge and
information on risk assessment and prevention, mitigation and preparedness, and disaster
response, relief, recovery and reconstruction in the region (White, 2015). SADVA's aims at
integrating information on hazards and vulnerabilities and facilitating easy and reliable
assessment and analysis of risks of disasters to assist decision makers in South Asia on best
risk mitigating measures (Johari, 2015).

Climate change solutions
It is argued that in the South Asian region, "adaptation to current climate change and
climate variability is weak and many communities are highly vulnerable" and therefore it is
important to adopt "locally appropriate methodologies for analyzing these effects and in
increasing understanding of current interactions of climate and environmental and
socioeconomic effects and changes" (Ahmed and Suphachalasai, 2014, p. 97). Because of the
transboundary nature of the effects of climate change in the South Asian countries,
cooperation and collaboration become even more critical as do concerted efforts in building
institutional capacity, research and dissemination of outcomes, and exchanging knowledge
and best practice (Ahmed and Suphachalasai, 2014, p. 100).

The SAARC Expert Group identified seven areas needing attention: adaptation to
climate change; policies and actions for climate change mitigation; policies and actions for
technology transfer; finance and investment; education and awareness; management of
impacts and risks; and capacity building for international negotiations. In order to mitigate
environmental problems, South Asian countries should be willing to share best practices
that have been adopted in their mitigation plans and also organize capacity building for
clean development mechanism projects and key stakeholders, including a designated
national authority in each country. Experts also pointed to the need for "assessing barriers
to technology development for adaptation and mitigation options" (SAARC, 2008b, p. 2).
At the national level, the focus was expected to be on regulatory measures, technological
interventions, stake holder's participation and institutional arrangements.

However, not much has been done to achieve these. The three-year action plan endorsed in 2011 has not been acted upon at the regional level as anticipated. Specific actions on climate change were evident at the country level long before the SAARC initiative. As an illustration, Bangladesh has had Climate Change Cells since 2004 in "climate-relevant" state bodies mainly to incorporate climate change issues in development initiatives. This was followed by the National Adaptation Programs of Action in 2005 and 2009. In 2008, the government adopted the Bangladesh Climate Change Strategy and Action Plan that focused, among other things, on comprehensive disaster management, mitigation and low-carbon development, capacity building and institutional strengthening. A Multi Donor Trust Fund to finance activities under the Climate Change strategy was also created with the government retaining control over it. This would ensure national ownership of the adaptation agenda (Nicol and Kaur, 2008, p. 2). Other countries have also adopted national adaptation action programs (Bhutan and Maldives in 2006, India in 2008, Nepal in 2010).

The key thrust in climate change solutions is expected to come from the post-HFA SAARC roadmap by integrating CCA and DDR into national/regional sustainable development framework. It prioritizes the development of regional principles and policy guidelines, appropriate financial allocations for implementing policies, integration of local and technical knowledge, utilization of best practices, information- sharing across the region, reinforcing hazard monitoring and climate monitoring systems, and building and building institutional capacity (SAARC, 2014, p. 27).

However, there are some barriers to implementing this roadmap, such as lack of climatic information required in the design of local level adaptation measures, flawed policy guidelines and institutional incapacity, dearth of community participation and absence of sub-national, sub-regional and regional cooperation mechanisms. Most importantly, a lack of political will and disinterest on the part of policymakers offset initiatives in DRR and CCA. Mainstreaming adaptation and mitigation strategies into sustainable development planning thus become difficult.

Environmental management instruments

In South Asia, for now the market-based instruments will not be necessary given the low level of carbon emission by most countries there. Contrarily, it will be more feasible to go for more cost-effective environmental policies and investing in environmental infrastructure across the region. Levies and charges can be applied to reduce traffic congestion, non-use of unleaded petrol in vehicles, improper waste disposal in urban centers, misuse of domestic gas, and for not using cleaner production methods in industries, irrational use of fertilizer and pesticide and water contamination. Emission trading schemes should be introduced only in India, being the highest polluter in the region, and gradually extended to the rest of the sub-continent if the situation becomes confronting (see O'Connor, 2004). For South Asia, SACEP (2014, pp. 28-29) suggests some flexible instruments in dealing with environmental problems and ensuring security by focusing on user-pay principles, pricing regulations, information access, rural electrification, energy-efficient technologies, disaster preparedness and mitigation strategies.

A few of these have been addressed in the country NEPs but should be made consistent and uniform throughout the region for easy monitoring and control. Strategic planning and impact assessments with a regional focus can be key instruments in conserving the environment and combatting the adversities of climate change. Uniform directives, guidelines, action programs and recommendations have been flowing from the SAARC Secretariat but these are not binding upon all states. Some have complied as far as practicable, others defaulted.

Concluding remarks: the way forward

Sustainable development calls for plans and actions that transcend nations and regions, and a partnership of equals would be ideal. But the political, geographic and economic landscape

of South Asia makes sustainable development a challenging issue. In spite of SAARC, relationships among most South Asian governments have not progressed to a stage where mutual trust and interest is evident. These nations vary in size and degree of influence and a preference for bilateral approach does not allow participation of all stakeholders in critical decisions. The problem becomes more complex as efforts are made to combine technical issues with political and bureaucratic considerations. An emphasis on local and national interest, as opposed to a regional approach, results in isolated actions defying any worthwhile intent.

The serious threat of climate change has been impacting upon the livelihood, lifestyle and location of citizens. The proximity of South Asian states allows climate change migrants to move easily to neighboring countries, thus complicating relations among them. Numerous statements and agreements were reached over the years to promote environmental protection, but they remain neglected and seldom revised to address emerging issues. Inconsistencies in strategies and actions thus persist.

Natural disasters, which have been frequent in South Asia for decades, demands quicker response from governments but the focus is mainly on rescue and rehabilitation activities instead of preemptive steps toward prevention and protection. Poverty alleviation remains a priority, but even progress in this area is negated by poor policies, economic problems and externalities. Environmental conservation and sustainable development goals remain unmet as political and policy rhetoric is not translated into reality. Inadequacy of information and unwillingness to acknowledge the intensity of the problem by politicians are principal causes. The driving force appears to be international aid that prompts governments more than the will to deal with the problem. Above all, there seems to be a lack of motivation to go beyond meetings and plans, particularly because South Asian governments are engaged in battling other problems having direct bearing on their survival.

Environmental governance in most of South Asia has, by and large, been state-dominated with direct intervention mainly through regulatory strategies over the use and upkeep of environmental resources. While governmental approaches follow norms of sound governance in environmental matters exemplified in policy documents, more has to be done to create structures for stakeholder participation in the policy process, especially implementation and evaluation. Environmental governance within a country is perhaps gradually feeling its way, but for the greater interest of regional sustainable development, apart from multilateral cooperation at the governmental level, intensified interaction among non-state environmental groups and the private sector is essential. Transboundary environmental governance (TEG) can be facilitated by direct inputs from non-governmental participants from different countries and external actors (World Bank, UNEP, IUCN) in coping with the impact of natural hazards and climate change, especially in relation to adaptation and mitigation measures, devising regulatory instruments and undertaking impact assessments. The sharing of water, forests, natural habitats and biodiversity resources can be more mutually and effectively shared through the structure and norms of TEG in South Asia. For instance, the dispute between India and Bangladesh on the use of the Farakka and Teesta barrages needs quick resolution.

The principle of subsidiarity has been followed, perhaps by default, as South Asian states have been free to adopt their own measures albeit within some guidelines developed by SAARC. However, integration of sector policies with direct or indirect implications for the environment has not happened to the extent desired. Mainstreaming the environment and climate change into an overarching economic and social development regime is yet to materialize. In disaster management, precaution and prevention have had a measure of success with improved outcome prior to and in the aftermath of natural hazards but a more holistic and integrated regional approach will be required to better prepare for natural disasters and minimize dire consequences.

South Asian TEG needs to be designed keeping in view the uniqueness and differences of each country and sub-regions within them. The commitment of the political leadership in each country seems to be there, but they need to resolve their ingrained political conflicts if they real want to move ahead and pursue sustainable development not only in their respective countries but in the region as a whole for environmental conservation and sustained well-being of their people.

Notes

1. India is one country which is tending to stand out, now being the third largest producer of CO_2 emissions (5.7 percent) after China (23.43 percent) and the USA (14.69 percent) (www.statista.com/statistics/271748/the-largest-emitters-of-co2-in-the-world/).

2. SAARC began in 1985 with the first ever summit of the heads of states/governments of seven nations—Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka—in Dhaka. Afghanistan joined over two decades later. Apart from these members, several other nations/bodies have observer status, including the USA, the European Union, Australia and China.

References

Ahmed, M. and Suphachalasai, S. (2014), *Assessing the Costs of Climate Change and Adaptation in South Asia*, Asian Development Bank, Manila.

Blewitt, J. (2014), *Understanding Sustainable Development*, 2nd ed., Routledge, Oxon.

Bührs, T. (2009), *Environmental Integration: Our Common Challenge*, SUNY Press, New York, NY.

Bührs, T. and Barlett, R.V. (1993), *Environment Policy in New Zealand: The Politics of Clean and Green*, Oxford University Press, Auckland.

Chandran, D.S. (2012), "Disaster management in South Asia: a regional approach", in Delinic, T. and Pandey, N.N. (Eds), *Regional Environmental Issues: Water and Disaster Management*, Centre for South Asian Studies, Kathmandu, pp. 72-85.

Chasek, P.S. (2012), "Sustainable development", in Snarr, M.T. and Snarr, D.N. (Eds), *Introducing Global Issues*, 5th ed., Lynne Rienner, Boulder, CO, pp. 253-272.

DeSombre, E.R. (2006), *Global Environmental Institutions*, Routledge, Oxon.

Dillard, J., Dujon, V. and King, M.C. (Eds) (2009), *Understanding the Social Dimension of Sustainability*, Routledge, New York, NY.

Evans, J. (2012), *Environmental Governance*, Routledge, Oxon.

Flint, R.W., McCarter, W. and Bonniwell, T. (2000), "Interdisciplinary education in sustainability: links in secondary and higher education", *International Journal of Sustainability in Higher Education*, Vol. 1 No. 2, pp. 191-202.

Fussel, H.M. (2007), "Adaptation planning for climate change: concepts, assessment approaches, and key lessons", *Sustainability Science*, Vol. 2 No. 2, pp. 265-275.

Fussel, H.M. and Klein, R.J.T. (2006), "Climate change vulnerability assessments: an evolution of conceptual thinking", *Climate Change*, Vol. 75 No. 3, pp. 301-329.

Giddings, B., Hopwood, B. and O'Brien, G. (2002), "Environment, economy and society: fitting them together into sustainable development", *Sustainable Development*, Vol. 10 No. 4, pp. 187-196.

GOB (2011), *Sixth Five Year Plan 2011-2015: Accelerating Growth and Reducing Poverty. Part-2 Sectoral Strategies, Programmes and Policies*, Bangladesh Planning Commission, Dhaka.

Goel, O.P. (2004), *India and SAARC Engagements*, Vol. 1, Isha Books, New Delhi.

GOI (2006), *National Environment Policy 2006*, Ministry of Government and Forests, New Delhi, available at: http://envfor.nic.in/sites/default/files/introduction-nep2006e.pdf (accessed January 12, 2015).

Golub, J. (Ed.) (1998), *New Instruments for Environmental Policy in the EU*, Routledge, London.

GON (2012), *Nepal Status Paper*, National Planning Commission, Kathmandu, available at: https://sustainabledevelopment.un.org/content/documents/1018nepalnationalreport.pdf (accessed February 12, 2015).

GOP (2005), *National Environment Policy 2005*, Ministry of Environment, Islamabad, (accessed January 10, 2015).

Government of Bangladesh (2013), *National Environmental Policy of Bangladesh*, Ministry of Environment and Forests, Dhaka, available at: www.moef.gov.bd/html/policy/pdf/Environment_policy.pdf (accessed February 12, 2015).

Government of India (2013), *Twelfth Five Year Plan (2012–2017) Faster, More Inclusive and Sustainable Growth*, Vol. 1, Sage, New Delhi.

Government of Nepal (2003), *The Tenth Plan: Poverty Reduction Strategy Paper, 2002–2007*, National Planning Commission, Kathmandu, available at: http://siteresources.worldbank.org/INTPRS1/Resources/Country-Papers-and-JSAs/Nepal_PRSP.pdf (accessed February 12, 2015).

Government of Sri Lanka (2003), "National environmental policy and strategies. available at: www.preventionweb.net/files/15417_nationalenvironmentpolicyandstrateg.pdf (accessed February 12, 2015).

IMF (2004), *Pakistan: Poverty Reduction Strategy Paper*, International Monetary Fund, Washington, DC, available at: www.imf.org/external/pubs/ft/scr/2004/cr0424.pdf (accessed February 12, 2015).

IMF (2010), "Pakistan: poverty reduction strategy paper", Country Report No. 10/183, International Monetary Fund, Washington, DC, available at: www.imf.org/external/pubs/ft/scr/2010/cr10183.pdf (accessed February 12, 2015).

Jabeen, M., Mahmood, T. and Umar, M. (2013), "Framing the chemistry of Himalayan water conflict in South Asia in perspective of climate change", *European Journal of Scientific Research*, Vol. 100 No. 1, pp. 12-21.

Jha, U.C. (2004), "Environmental issues and SAARC", *Economic and Political Weekly*, Vol. 39 No. 17, pp. 1666-1671.

Johari, P. (2015), *Digital Vulnerability Atlas of South Asia*, SAARC, Kathmandu.

Kjellen, B. (2008), *A New Diplomacy for Sustainable Development: The Challenge of Global Change*, Routledge, New York, NY.

Koh, K.L. and Robinson, N.A. (2002), "Regional environmental governance: examining the Association of Southeast Asian Nations (ASEAN) Model", in Esty, D.C. and Ivanova, M.H. (Eds), *Global Environmental Governance: Options & Opportunities*, Yale School of Forestry & Environmental Studies, New Haven, CT, pp. 101-120.

Lee, G. (2012), "Bilateralism versus multilateralism in East Asia", Policy Brief No. 4, available at: http://igcc.ucsd.edu/assets/001/503978.pdf (accessed February 15, 2015).

Musu, I. (2008), "Integrated environmental policy in the European Union", in Clini, C., Musu, I. and Gullino, M.L. (Eds), *Sustainable Development and Environmental Management: Experiences and Case Studies*, Springer, New York, NY, pp. 3-14.

Najam, A., Papa, M. and Taiyab, N. (2006), *Global Environmental Governance: A Reform Agenda*, International Institute for Sustainable Development, Winnipeg.

Nicol, A. and Kaur, N. (2008), *Climate Change: Getting Adaptation Right*, Overseas Development Institute, London.

O'Connor, D. (2004), "OECD country economic and environmental policies: what implications for East Asia?", seminar on The Impact and Coherence of OECD Country Policies on Asian Developing Economies OECD, available at: www.oecd.org/pcd/31970833.pdf (accessed March 17, 2015).

O'Lear, S. (2010), *Environmental Politics: Scale and Power*, Cambridge University Press, Cambridge.

Odell, J.S. (2000), *Negotiating the World Economy*, Cornell University Press, Ithaca, NY.

ODI/CDKN (2014), "The IPCC's fifth assessment report: what's in it for South Asia?", Overseas Development Institute, London and Climate and Development Knowledge Network, London.

ODI/DANIDA (2012), "Inclusive and sustainable development: challenges, opportunities, policies and partnerships", Overseas Development Institute, London, and DANIDA, Copenhagen.

Powell, L. (2003), "In defense of multilateralism", presented at the Global Environmental Governance: the Post-Johannesburg Agenda. Yale Center for Environmental Law and Policy, New Haven, CT, available at: www.yale.edu/gegdialogue/docs/dialogue/oct03/papers/Powell.pdf (accessed November 14, 2015).

PreventionWeb (2015), "SAARC disaster management centre", available at: www.preventionweb.net/english/professional/contacts/profile.php?id=3329 (accessed March 10, 2015).

SAARC (1992a), *Regional Study on Greenhouse Effect and its Impact on the Region*, SAARC Secretariat, Kathmandu.

SAARC (1992b), *Regional Study on the Causes and Consequences of Natural Disasters and the Protection and Preservation of the Environment*, SAARC Disaster Management Centre, New Delhi.

SAARC (2007), *SAARC Comprehensive Framework on Disaster Management*, SAARC Secretariat, Kathmandu, available at: http://saarc-sdmc.nic.in/pdf/framework.pdf (accessed December 12, 2014).

SAARC (2008a), *Dhaka Declaration on Climate Change*, SAARC Secretariat, Kathmandu, available at: http://saarc-sdmc.nic.in/pdf/publications/climate/chapter-1.pdf (accessed February 14, 2015).

SAARC (2008b), *Action Plan on Climate Change*, SAARC Secretariat, Kathmandu, available at: http://saarc-sdmc.nic.in/pdf/publications/climate/chapter-2.pdf (accessed February 14, 2015).

SAARC (2009), *Ministerial Statement on Cooperation in Environment*, SAARC Secretariat, Kathmandu, available at: http://admin.indiaenvironmentportal.org.in/files/Delhistatement-Final.pdf (accessed February 14, 2015).

SAARC (2010a), "Islamabad Declaration". SAARC Secretariat, Kathmandu, available at: www.saarc-sec.org/userfiles/04-Islamabad-4thSummit1988.pdf (accessed February 25, 2015).

SAARC (2010b), "Thimphu statement on climate change", SAARC Secretariat, Kathmandu, available at: www.saarc-sec.org/userfiles/ThimphuStatementonClimateChange-29April2010.pdf (accessed February 14, 2010).

SAARC (2011), "SAARC Agreement on Rapid Response to Natural Disasters", SAARC Secretariat, Kathmandu, available at: www.ifrc.org/docs/idrl/N840EN.pdf (accessed February 12, 2015).

SAARC (2014), *Input Paper 2015 Roadmap/Framework for DRR in SAARC Region (HFA2)*, SAARC Disaster Management Centre, New Delhi.

SACEP (2014), *Post 2015 South Asia Development Agenda*, South Asia Co-operative Environment Programme, Colombo, available at: www.irf2015.org/sites/default/files/publications/Post%2020 15%20SADA.pdf (accessed January 5, 2014).

Sachs, J.D. and Ki-moon, B. (2015), *The Age of Sustainable Development*, Columbia University Press, New York, NY.

Sivakumar, M.V.K. and Stefanski, R. (2011), "Climate change in South Asia", in Lal, R., Sivakumar, M.V.K., Faiz, M.A., Mustafizur Rahman, A.H.M. and Islam, K.R. (Eds), *Climate Change and Food Security in South Asia*, Springer, New York, NY, pp. 13-30.

SLG (2010), *The Development Policy Framework*, Ministry of Finance and Planning, Colombo, available at: http://203.94.72.22/publications/npd/mahindaChintanaVision-2010full-eng.pdf (accessed January 6, 2015).

Speth, J.G. (1995), "The transition to a sustainable society", *Proceedings of the National Academy of Sciences*, Vol. 89 No. 3, pp. 870-872.

Speth, J.G. (2002), "The global environmental agenda: origins and prospects", in Esty, D.C. and Ivanova, M.H. (Eds), *Global Environmental Governance: Options & Opportunities*, Yale School of Forestry & Environmental Studies, New Haven, CT, pp. 11-30.

Swain, A. (2002), "Environmental cooperation in South Asia", in Conca, K. and Dabelko, G.D. (Eds), *Environmental Peacekeeping*, Johns Hopkins University Press, Baltimore, pp. 61-85.

Tews, K., Busch, P.O. and Jörgens, H. (2001), "The diffusion of new environmental policy instruments", paper prepared for the ECPR, 2001 Grenoble Joint Sessions of Workshops Workshop No. 1: New Environmental Policy Instruments, Free University of Berlin, Berlin, available at: http://ecpr.eu/Filestore/PaperProposal/b3f01913-619a-4d43-a0e4-62c71813be6f.pdf (accessed March 17, 2015).

UNDP (2014), *The Millennium Development Goals Report*, United Nations Development Programme, New York, NY.

UNEP (2008), "Climate Change Adaptation and Mitigation in the Tourism Sector: Frameworks, Tools and Practices", UNEP, University of Oxford, UNWTO, WMO.

United Nations (2007), "International strategy for disaster reduction", Hyogo framework for action 2005–2015: building the resilience of nations and communities to disasters, United Nations, New York, NY, available at: www.unisdr.org/files/1037_hyogoframeworkforactionenglish.pdf (accessed March 10, 2015).

WCED (1987), *Our Common Future*, Oxford University Press, Oxford.

White, T. (2015), *A Critical Disconnect: The Role of SAARC in Building the DRM Capacities of South Asian Countries*, Brookings Institution, Washington, DC.

World Bank (2012), *Disaster Risk Management in South Asia: A Regional Overview*, The World Bank, Washington, DC.

Further reading

Glasbergen, P. and Cörvers, R. (2003), "Environmental problems in an international context", in Glasbergen, P. and Blowers, A. (Eds), *Environmental Policy in an International Context: Perspectives*, Butterworth-Heinemann, Oxford, pp. 1-29.

Government of Pakistan (GOP) (2002), *Environmental Challenges and Responses of Pakistan*, Ministry of Environment, Local Government and Rural Development, available at: http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan004673.pdf (accessed January 10, 2015).

Jordan, A., Wurzel, R.K.W. and Zito, A.R. (2003), "Comparative conclusions – 'New' environmental policy instruments: an evolution or a revolution in environmental policy?", *Environmental Politics*, Vol. 12 No. 1, pp. 201-224.

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