



## Climate Change Mitigation through Renewable Energy -A Case Study of South Asia

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### ABSTRACT

South Asia with one fifth of world population is an extreme disaster prone region. According to the global database on disasters, over the past forty years, South Asia faced as many as 1,333 disasters that killed 980,000 people, affected 2.4 billion lives and damaged assets worth \$105 billion. These totals are by far, the highest among the recorded disasters in various geographic regions. This has been further confirmed by South Asian Environment Outlook, 2009 and Climate Vulnerability Monitor, 2010. Two thirds of the disasters in the region are climate related and there has been an increase in the frequency, severity and unpredictability. The most severe impact has been in terms of sea level rise leading to submergence of low coastal areas. The furies of cyclones sand storm surges have threatened the lives and livelihood of millions at regular intervals. Another consequence has been the depletion of Himalayan Glaciers which have caused flash floods in the hills and the plains. Risks of disasters in the region are therefore multiplied because of adverse impact of climate change. The situation created by hazards of nature becomes worse because there are layers of vulnerability in the region - poverty, illiteracy, malnutrition and social inequities which aggravate the risk and lead to more disasters. In this context the South Asian countries are left with no option but to work together at the regional level to deal with this complex matrix of hazards, risks and vulnerabilities. This paper attempts to examine various initiatives taken by SAARC on renewable energy and climate change. The focus of the study will be on the efficacy of SAARC as a regional organization to deal with these initiatives. Further various problems facing SAARC while pursuing these initiatives will also be highlighted. This paper will also draw a comparison with Association for South East Asian Nation (ASEAN) and the initiatives taken. Finally the paper will analyse the concept of human and environmental security in South Asia as enunciated by Mahbbub ul Haq .His contention that environment security is an essential condition for achieving all the Millennium Development Goals (MDGs) will also be analysed in the paper.

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## **Introduction**

South Asia with one fifth of world population is an extreme disaster prone region. Recently in May 2011, the Secretary General of SAARC presented a draft SAARC Agreement on Rapid Response to Natural disasters to the Inter-governmental meeting in Colombo. He pointed out quoting global statistics that over past forty years, South Asia faced as many as 1333 disasters that killed 980,000 people, affected 2.4 billion lives and damaged assets worth \$105 billion. Further, that this loss is by far the highest among the recorded disasters in various geographical regions. The United Nations Environment Programme (UNEP) in pursuance of its mandate to review the global environment collaborated with South Asian Association for Regional Cooperation (SAARC) to present South Asian Environment Outlook, 2009 (SAEO, 2009) after a wider consultation process involving governments and other partners from the nations of South Asia, sub-regional intergovernmental agencies and experts. The Report reveals the state and trends of the environment – land, air, water and bio-diversity and covers five key issues on Climate Change, Food Security, Water Security, Energy Security and managing Urbanisation.

## **Renewable Energy in South Asia**

Late venerable Dr Mahbub ul Haq whose Human Development Centre in Pakistan provides us insightful reports on the state of human development in South Asia, gave a comprehensive definition of human security as security of income, employment, food, health, education and environment. Further, in its ambit are insecurity arising from violence within the household, by the community and the state against women, children and the minorities.

South Asia has been acknowledged to be a region in crisis. The sense of crisis deepened in 1980s, when South Asia was perceived to be falling behind in the development process as compared to East and Southeast Asian countries which were on a fast track of growth and economic transformation. South Asian countries were caught in a vicious circle of low growth and poverty, unable to overcome their economic and social problems. Whatever economic growth was achieved, the same was uneven, resulting in sharp disparities between

different regions and communities. The severe problems of endemic poverty, slow and uneven economic growth were further compounded by the extreme population pressure. The modest economic achievements of the sub-continent were diluted by explosive population growth. High rates of population growth rendered South Asia as the most densely populated region in the world. (260 people per sq. km. against the global average of 44 people per sq. km.). South Asia has suffered extensive erosion of its natural resources in recent past. The most critical dimension of this erosion was deforestation of tropical forests. The deforestation has resulted in virtual breakdown of Himalayan eco-system with consequent silting of river beds and annual flooding of vast areas in the region. With rising population pressure, this situation can deteriorate to ecological disaster.

Natural disasters are afflicting South Asia with increased frequency and ferocity – recent cyclones, particularly, the super cyclone that hit India's east coast (Tsunami of 2004), earthquake of 2005 and super flood during July-August 2010 in Pakistan, have been causing extensive damage to life and property. To add to the negative economic, demographic and ecological profile of South Asia, is the high defence expenditure in the countries of the region. It is indeed ironic that while the economic indicators of growth and development are suppressed due to growth in population, the trend in per capita defence expenditure shows an upswing. High defence expenditure not only adds to the fragility of the economies of South Asian countries but also points towards a deteriorating security environment in the region.

The socio-political scene in South Asia is marred by conflict and strife. The societies in South Asian countries are plural, composite in nature, comprising various cultural, ethnic, linguistic and religious groups. The State structures and socio-political institutions seem inadequate or unsuitable to accommodate the rich diversity in the region. We have serious democratic deficit with borrowed institutions of Western democracies which are not rooted in the indigenous history and culture. Violence, terrorism and ethnic conflicts in several countries of the region have assumed serious proportions – prolonged insurgency in Indian North-East, conflict in Kashmir, history of ethnic

divergence between Sri Lankan Tamils and majority Sinhala population, violence against Mohajirs in Karachi, tension in Sind and Baluchistan, instability and uncertainties in Nepal in the aftermath of war by Nepal Communist Party-Maoist (NCP-M) against the constitutional monarchical democratic system, fierce antagonism between warring political groups in Bangladesh. Further, narco-terrorism and religious fundamentalism have cast their pernicious, dark shadow on the sub-continent. The presence of US-NATO forces in the eighth member State of SAARC(Afghanistan) and the complex nature of the war in that country involving Pakistan and fundamentalist forces therein has aggravated the adverse politico-security situation in the region.

The Human Development in South Asia Report 2005 made following seven important findings after analyzing issues of human insecurity in South Asia:

- i) There is a disconnect between economic growth and human development and hence the economic policies in the region have made people more vulnerable to shocks and insecure in life.
- ii) The conflicts in the region between states and within are due to some deep-seated feelings of injustice and disempowerment.
- iii) The economic insecurity is the cause of many conflicts and disruption of life.
- iv) If health infrastructure not improved South Africa will go Sub-Saharan Africa way in this regard.
- v) Environment degradation has reached such levels that huge disaster is imminent if no prompt action taken to avert this disaster.
- vi) Children and Women are extremely vulnerable in South Asia.
- vii) The institutions of governance must protect and serve people rather than the rich and powerful.

### **Intergovernmental Panel on Climate Change (IPCC)**

The Intergovernmental Panel on Climate Change (IPCC) which came into existence in 1988 in pursuance of first World Climate Conference organized under the aegis of UN Environment Programme (UNEP) and World Meteorology

Organisation(WMO) defines Climate Change as the change in the state of the climate that can be identified by changes in the mean and/or variability of its properties persisting for an extended period. Further, this change could be due to natural variability or a result of human activity. There is now acknowledged plethora of scientific evidence that climate change is occurring primarily due to human activity. The emission of Green House Gases(GHGs) and its effect on global warming leading to devastating consequences for the climate are now well known for quite sometime. The debate on Climate Change has acquired urgency of late due to the existential threat that its adverse impact poses for humanity and also since it raises serious political issues on the nature and ideology of the model of economic growth and progress based on fierce consumption of depleting fossil fuels.

The IPCC report provides strong evidence of the change in climate. It has noted CO<sub>2</sub> atmospheric concentration up from 280 ppm (pre-industrial) to 379 ppm (2005) and GHG emissions up by 70% between 1970-2004. This has resulted in rise in global mean temperature by 0.74°C between 1906-2005. The eleven years period between 1995-2006 has been recorded among the 12 warmest years since 1850. Further, global sea level rose 1.8mm/yr during 1961-2003 and at a faster pace during 1993-2003 at the rate of 3.1 mm per year. The average warming in future is predicted to be 0.2°C per decade. The adverse impact of these changes would increase the risks of natural disasters like floods, cyclones, drought, coastal erosion, landslides, water famine, food scarcity, adverse impact on human health, damage to fresh water ecosystems etc. The socio-economic impact of such adverse changes could be devastating for a densely populated region like South Asia.

### **Regional Response**

The kaleidoscope of a multi-faceted crisis in South Asia inevitably demands a regional response to the threats posed by Climate Change. In fact, the complex nature of this crisis makes it a threat to the very existence of sub-continent population seeking a secure and dignified human life. The climate of mother earth being indivisible and intertwining of bio-physical and social sub-systems as mentioned earlier, would necessarily dictate that the regional response dovetails to the global efforts to find

answers to the issues raised by the crisis of Climate Change.

South Asia with its ancient lineage of environmentalism and current dismal state of environment outlook and natural disasters entered the phase of regional cooperation rather late as compared to other regional groupings in the world. The Heads of the State/Government of seven South Asian countries -Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka - formally established the South Asian Association for Regional Cooperation (SAARC) in their first summit meeting held in Dhaka on 7-8 December, 1985. They adopted a Charter for SAARC in this summit meeting. The basic objectives set forth in the Charter were, inter-alia, to promote the welfare of the peoples of South Asia and to improve their quality of life; to accelerate economic growth, social progress and cultural development in the region; and to promote and strengthen collective self-reliance among countries of South Asia.

During the initial formative period between 1985 and 1990 five SAARC Summits were held: Dhaka in December 1985; Bangalore, November 1986, Kathmandu, November 1987; Islamabad, December 1988 and Male, November 1990. With each Summit making a contribution the confidence of the Member States deepened, activities expanded and the SAARC became a reality. The Charter of the SAARC signed at Dhaka Summit enunciated the objectives, principles and the institutional framework of SAARC. The principal objectives of SAARC being socio-economic welfare and cultural development of the South Asian peoples, emphasis was laid on the achievement of the goal of collective collaboration in the economic, social, cultural, technical and scientific fields.

The Charter lays down the institutional framework of SAARC defining its administrative and operational machinery. It provides for a pyramidal structure, with Summit at the apex, supported by the Council of Ministers (Foreign Ministers of the Member States) and the Standing Committee comprising of Foreign Secretaries of the Member States. A network of Technical Committees for each of the agreed areas of cooperation provides the base structure of the administrative organisation. The Council of Ministers is to function as a cabinet, referring matters to the Summit for decisions and further, to carry them out through the Standing

Committee. The Standing Committee is thus the important executive agency for the decisions taken by the Council of Ministers and the Summit. There is also a Programme Committee to monitor the performance of Technical Committees. The Charter also provides for setting up a Secretariat with the Secretary General, seven Directors and the General Services Staff. The SAARC Secretariat came into existence in January 1987 at Kathmandu to co-ordinate and monitor the implementation of SAARC activities, service the meetings of the Association and serve as the channel of communication between SAARC and other international organisations. The Secretary General of the Secretariat is nominated by the Member Countries on the basis of rotation.

The most significant feature of the Charter is the provision that the Heads of State/Government would meet once a year, or more often, if necessary. The inaugural Dhaka Summit set the precedent for procedures and modalities to be followed in future. Thus each Summit was to be preceded by a meeting of the Standing Committee and of the Council of Ministers. After the conclusion of each Summit, a declaration expounding the Summit's philosophy and thinking was issued along with a Joint Communique which contained in summary form the substantive decisions of the Summit.

### **SAARC Study on Environment Preservation and Natural Disasters**

The Third SAARC Summit which was convened in Kathmandu, Nepal on 2-4 November, 1987decided, inter-alia, to commission a study on the 'Protection and Preservation of the Environment and the Causes and Consequences of Natural Disasters' in a well-planned comprehensive framework. In fact, while deciding to commission this study, the Summit leaders expressed their deep concern at the fast and continuing degradation of the environment including extensive destruction of forest, in the South Asian region. They also noted that South Asia was afflicted with such natural disasters as floods, droughts, landslides, cyclones, tidal waves which have had a particularly severe impact causing immense human suffering. This study which was finalized in December 1991 was formulated after a very comprehensive national studies by individual Member States to bring out the conditions prevalent in the countries of the region on environment and natural disasters. The individual country reports

also mentioned the preventive and remedial measures taken with regard to adverse climate conditions and natural disasters. The individual country studies were amalgamated with the help of consultant experts. The study report noted that:

*The region is one of the poorest in the world and has a high rate of population growth and population density – the SAARC Member states comprise 20 per cent of the world's population living on 3.5 per cent of the total land area and generate only 2 per cent of the world's GNP. The pressures that these socio-economic conditions create on the natural environment are enormous. In addition, development programmes in the area of industry, agriculture and energy, which are necessary to improve the standards of living of the people, create environmental problems through the generation of wastes and heavy demands they put on natural resource base. SAARC region because of its high level of poverty.... Degradation of the environment has a particularly adverse effect on the poor, and results in increased natural disasters, especially in the high slopes of the mountain regions, dry and desertified areas, and in the flood plains. The natural resource base of South Asia Has to be managed extremely carefully and with great ingenuity to ensure increased productivity on a sustainable basis so that present and future generations can meet their needs and aspirations and live in harmony with their environment.*

The Report made recommendations on measures to protect and manage environment and suggested measures and programmes for strengthening disaster management capabilities. Specific issues covered by recommendations on protecting and managing environment included strengthening the environment management infrastructure, environmentally sound land and water planning, research and action programme on mountain development in the Himalayan Region, coastal zone management programme, integrated development of river basins, SAARC forestry and watershed programme, programme on energy and environment, pollution control and hazardous wastes programme, network on traditional water harvesting techniques, SAARC cooperative programme for biodiversity management, people's participation in resource management, information exchange on low-cost and environmentally sound habitat related technologies, SAARC network of environmental NGOs, participation of women in environment, SAARC

Fund for environment, SAARC report on the state of environment and cooperation among SAARC Members on environmental issues in international forums.

Further, the Report incorporated measures and programmes for strengthening disaster management capabilities and covered topics on networking of institutions on natural disaster planning and management, establishment of a SAARC relief and assistance mechanism for disasters, cooperation on the development of modern disaster warning systems, programme for research related to drought prone areas and information exchange system on management of human activities in disaster prone areas. Finally, the Report suggested an appropriate institutional mechanism for coordinating and monitoring implementation of its recommendations in the form of a SAARC Committee on Environment.

### **SAARC Study on Greenhouse Effect**

Coinciding with Public Scientific Conference held in Toronto SAARC heads of States and Governments in their Fourth Summit held in December 1988 decided to undertake a study on the Greenhouse effect and its impact on the region. The unprecedented floods, cyclones and earthquakes during the year attracted their attention and they observed as under:

*The Heads of State or Government expressed their deep sense of sorrow and profound sympathy at the loss of valuable lives and extensive damage to property suffered during the year by Bangladesh, India, Nepal and Pakistan as a result of unprecedented floods, cyclones and earthquakes. In this connection, they recalled their earlier decision at Kathmandu in November, 1987 to intensify regional cooperation with a view to strengthening their disaster management capabilities and took note of the recommendations of the meeting of the SAARC Group of Experts on the Study on the Causes and Consequences of Natural Disasters and the Protection and Preservation of the Environment, that met in Kathmandu in July 1988. They expressed the conviction that identification of measures and programmes as envisaged by the Group of Experts would supplement national, bilateral, regional and global efforts to deal with the increasingly serious problems being faced by the region as a result of*

*the recurrence of natural disasters and the continuing degradation of the environment. They urged that the study should be completed in the shortest period of time so that it could provide a basis for the member countries to draw up an action plan for meaningful cooperation amongst the Member States. They decided that a joint study be undertaken on the "Greenhouse Effect" and its impact on the region.*

This study recommended regional measures in sharing experiences, scientific capabilities and information on climate change, sea level rise and technology transfer. The regional discourse among SAARC countries was keeping pace with the global debate and proceedings in different forums. The studies on natural disasters/environment and Greenhouse Effect culminated in adoption of SAARC Plan of Action on Environment in 1997. Subsequently, there was a series of meetings of SAARC Environment Ministers and flurry of regional activity in the wake of this discourse acquiring critical global dimension.

#### **SAARC Year of Green South Asia: 2007**

SAARC declared year 2007 as the Year of Green South Asia. SAARC leaders meeting for Fourteenth Summit in April this year reiterated that collaboration in addressing the problem of arsenic contamination of groundwater, desertification and melting of glaciers and assistance to affected peoples should be deepened. They expressed deep concern over global climate change and the consequent rise in sea level and its impact on the lives and livelihoods in the region. They emphasised the need for assessing and managing its risks and impacts. They called for adaptation of initiatives and programmes; cooperation in early forecasting, warning and monitoring; and sharing of knowledge on consequences of climate change for pursuing a climate resilient development in South Asia. They agreed to commission a team of regional experts to identify collective actions in this regard. In December 2007 SAARC Council of Ministers discussed the issue of climate change in the context of increasing vulnerability of the region due to environmental degradation. The Ministers felt that given the vulnerabilities, inadequate means and limited capacities, there was need for rapid social and economic development in the region to make SAARC climate change resilient.

#### **SAARC Action Plan on Climate Change and Renewable Energy**

SAARC Environment Ministers meeting in Dhaka in 2008 adopted SAARC Action Plan on Climate Change. The objectives of the Action Plan were to identify and create opportunities for activities achievable through regional cooperation and south-south support in terms of technology and knowledge transfer, to provide impetus for regional level action plan on climate change through national level activities and to support the global negotiation process of UNFCCC such as Bali Action Plan, through a common understanding or elaboration of the various negotiating issues to effectively reflect the concerns of SAARC Member States. The thematic areas of the Action plan included adaptation to climate change, actions for climate change mitigation, technology transfer, finance and investment, education and awareness programme, management of impacts and risks associated with climate change and capacity building for international negotiations. The Action plan epitomized the predicament and frustration of the developing countries on the slow progress and virtual negation of the concerns of Non-Annex-1 countries defined in Kyoto Protocol. The efforts at collective self-reliance as indicated in the objectives of the Action Plan was reminiscent of older era when North-South stalemate debate was at its peak.

#### **Sixteenth SAARC Summit: Focus on Climate Change AND Energy Security**

Sixteenth SAARC Summit held at Thimpu, Bhutan in April 2010 was dedicated to the theme of Climate Change. The Summit declaration which was silver jubilee of the beginning of SAARC was termed 'Towards a Green and Happy South Asia'. The Thimpu Statement on Climate Change adopted at the Summit meeting called for a review of the implementation of the Dhaka Declaration and SAARC Action Plan on Climate Change and ensure its timely implementation. There was an agreement to establish an Inter-governmental Expert Group on Climate Change to develop clear policy direction and guidance for regional cooperation as envisaged in the SAARC Plan of Action on Climate Change. It was resolved that the Inter-governmental Expert Group on Climate Change shall meet at least twice a year to periodically monitor and review the implementation of this Statement and make recommendations to facilitate its implementation

and submit its report through the Senior Officials of SAARC to the SAARC Environment Ministers.

The Thimphu Statement as if anticipating probable failure of Cancun conclave resolved to attempt and carry on with comprehensive regional self-reliance efforts and adopted following:

*Direct the Secretary General to commission a study for presentation to the Seventeenth SAARC Summit on 'Climate Risks in the Region: ways to comprehensively address the related social, economic and environmental challenges';*

*(ii) Undertake advocacy and awareness programs on climate change, among others, to promote the use of green technology and best practices to promote low-carbon sustainable and inclusive development of the region;*

*(iii) Commission a study to explore the feasibility of establishing a SAARC mechanism which would provide capital for projects that promote low-carbon technology and renewable energy; and a Low-carbon Research and Development Institute in South Asian University;*

*(iv) Incorporate science-based materials in educational curricula to promote better understanding of the science and adverse effects of climate change;*

*(v) Plant ten million trees over the next five years (2010-2015) as part of a regional afforestation and reforestation campaign, in accordance with national priorities and programmes of Member States;*

*(vi) Evolve national plans, and where appropriate regional projects, on protecting and safeguarding the archeological and historical infrastructure of South Asia from the adverse effects of Climate Change;*

*(vii) Establish institutional linkages among national institutions in the region to, among others, facilitate sharing of knowledge, information and capacity building programmes in climate change related areas;*

*(viii) Commission a SAARC Inter-governmental Marine Initiative to strengthen the understanding of shared oceans and water bodies in the region and the critical roles they play in sustainable living to*

*be supported by the SAARC Coastal Zone Management Center;*

*(ix) Stress the imperative of conservation of biodiversity and natural resources and monitoring of mountain ecology covering the mountains in the region;*

*(x) Commission a SAARC Inter-governmental Mountain Initiative on mountain ecosystems, particularly glaciers and their contribution to sustainable development and livelihoods to be supported by SAARC Forestry Center;*

*(xi) Commission a SAARC Inter-governmental Monsoon Initiative on the evolving pattern of monsoons to assess vulnerability due to climate change to be supported by SAARC Meteorological Research Center;*

*(xii) Commission a SAARC Inter-governmental Climate-related Disasters Initiative on the integration of Climate Change Adaptation (CCA) with Disaster Risk Reduction (DRR) to be supported by SAARC Disaster Management Center;*

*(xiii) Complete the ratification process for the SAARC Convention on Cooperation on Environment at an early date to enable its entry into for action.*

On the aftermath of Indian Ocean Tsunami of December 2004, a Special Session of the SAARC Environment Ministers was held at Male on 25 June 2005. The Ministers had concluded the meeting by adopting the Male Declaration, which decided inter alia that an Expert Group of the member countries shall meet at Dhaka, Bangladesh to formulate a Comprehensive Framework on Early Warning, Disaster Management and Disaster Prevention, prior to the Seventh Ministerial Meeting on Environment in Bangladesh. The Expert Group met on 7-9 February, 2006 in Dhaka and developed a comprehensive framework on disaster management in South Asia. The framework is aligned with the implementation of the Hyogo Framework of Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. The Framework was approved by the SAARC Council of Ministers on 30 July 2006 and by the Fourteenth SAARC Summit in New Delhi in 3-4 April 2007.

The Framework provides a platform for South Asian countries to:

- *Establish and strengthen the regional disaster management system to reduce risks and to improve response and recovery management at all levels*
- *Identify and elaborate country and regional priorities for action*
- *Share best practices and lessons learnt from disaster risk reduction efforts at national levels*
- *Establish a regional system to develop and implement regional programmes and projects for early warning*
- *Establish a regional system of exchanging information on prevention, preparedness and management of natural disasters*
- *Create a regional response mechanism dedicated to disaster preparedness, emergency relief and rehabilitation to ensure immediate response*
- *Create a regional mechanism to facilitate monitoring and evaluation of achievements towards goals and strategies.*

An inter-governmental meeting on draft SAARC Agreement on Rapid Response to Natural Disasters held in Colombo, Sri Lanka in May 2011 reached a broad consensus on the Agreement. This agreement is scheduled to be adopted in forthcoming Seventeenth SAARC Summit to be held in Maldives in November 2011. The draft agreement based on the principle of respect for the sovereignty, territorial integrity and national unity of all member states aims to put in place an effective mechanism for rapid response to disasters to achieve substantial reduction in loss of lives and loss of social, economic and environmental assets in times of a disaster.

## **Conclusion**

SAARC regional efforts in responding to the threat of Climate Change matching global exercise are neither short on rhetoric nor on inaction. There is a basic lack of political will both at global and regional level. While the dangers posed by this threat to the humankind as a whole and more so to the poor and vulnerable regions like South Asia are well acknowledged, the selfish abandon with which the rich and powerful globally and within poor regions love their life styles and consumption

patterns, do not inspire confidence in their ability to change course. The prolonged deliberations and denial of negotiated and accepted basic principles symbolized by virtual repudiation of Kyoto protocol, makes the future of dealing with the threats of Climate Change rather bleak. SAARC's boastful rhetoric on regional cooperation was recently exposed during July-August 2010 super floods which hit Pakistan. These floods not only destroyed infrastructure in several parts of Pakistan but affected a huge population of approximately 20 million people. Except for a pledge of a meager US\$32 million by SAARC countries, there was virtually no action to help a member state suffering unprecedented damage due to this calamity. It was only in April 2010, i.e., only a few months before the super floods hit Pakistan that Silver Jubilee Climate theme SAARC Summit was celebrated at Thimpu, Bhutan.

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