KEY RECOMMENDATIONS
by
PAKISTAN ENGINEERING CONGRESS
on
WORLD ENVIRONMENT DAY 2014
HELD ON 5TH JUNE 2014

Pakistan Engineering Congress celebrated World Environment Day on the theme of **"Effects of Climate Change on Small Island Developing States (SIDS) and its Mitigation"** on 5th June, 2014. Honourable **Mr. Shuja Khanzada**, Minister for Environment, Government of the Punjab was the Chief Guest. Welcome Address was presented by Engr. Iftikhar Ahmad, President Pakistan Engineering Congress. Nine (9) papers were presented by eminent specialists on Environment & Climate Change. It was a very well attended event and was widely covered by News & Electronic Media.

Given below are the recommendations made by the Speakers:-

Paper : Mitigation of Adverse Impacts of Climate Change in Small Islands Developing States

Author : Dr. Muhammad Afzal Chaudhry

Recommendations:

The United States Office of the high representatives for the least developed countries. Land locked developing countries and small islands developing countries (UN – OHRLLS) in collaboration with a number of other UN bodies and the UN Member SIDS are making efforts to help SIDS to readjust to their new conditions. Major issues being projected at OHRLLS are coastal and marine resources, bio-diversity, energy, transportation and communication, land resources, shrinkage, food security and loss of trade.

The UN-OHRLLS collects all required data from SIDS and projects various issues to develop industrialized countries, other U.N. agencies U.S. Aid, GICA and the World Bank, UN-OHRLLS also promotes public private partnership in finding solution to the problems caused to SIDS due to various activities under taken by industrialized countries. In response, various agencies have committed to take-up SIDS projects for funding and technical assistance. The UN-OHRLLS platform can be used by SIDS to see technical assistance and funding from donor agencies which can become partners in development of SIDS. Attention of industrialized countries can be drawn that the SIDS are facing problems because of their activities and, therefore, they ought to compensate SIDS by funding, sharing their research dividends and extending necessary technical assistance. SIDS can also use this platform for alerting various international agencies about their priority issues faced by them.

Noteworthy points emanating from these conferences and protocols are as follows:-

1. U.S.A. along with some other developed / industrialized countries participated in the conferences but abstained from signing any protocol, resolution or commitment.

2. In Koyoto Conference under Kyoto Protocols UNFCCC was launched. It brought in concepts like Carbon Credits, Carbon sequestration and Carbon Reduction Programs. The USA did not sign any of the protocols.

3. In Copenhagen Conference, the developing countries including SIDS declined from any further under takings in such a UN Climate Change Framework where major industrialized countries led by USA were consistently defying from signing. That, to a large extent, brought the momentum of the programs which were initiated under Kyoto

Protocols. By the same corollary, the mitigation of adverse impacts of climate change, even by way of adaptation, is in the dole drums now a days. They may have to develop an alliance of their own and look for some non-conventional donors.

Paper : A Review of SIDS : Characteristics, Effect of Climate Change and Its Mitigation Measures

Author : Ms. Sidra Siddique, Ms. Asifa Alam, Dr. Engr. Abdullah Yasir, and Dr. Amtul Bari Tabinda

Recommendations :

Many SIDS have substantial potential for further development of renewable energy by the asset of their location, a plenty of sunshine that gives rise to the wind, and adequate rain and plant life that can be tapped for energy. In addition, the presence of geothermal springs, vents and other geo- and hydrothermal resources on land as well as in the ocean increases the potential sources of energy production in most SIDS. Future developments may include the high use of solar, wind and geothermal power as well as ocean thermal and tidal energy conversion. Efforts to increase the use of renewable energy, especially wind turbines, are commonly cited as one of the technology options for breaking SIDS reliance on fossil fuels.

Climate change extremely affects the economic and social infrastructure in small islands which damages the fundamental sectors like tourism, biodiversity, fisheries and agriculture, and placing infrastructure at high risk. The size and relative isolation of the islands will make them feel the effects of climate change more than other countries. Indeed, climate change will place the viability and very existence of many island states at risk. Therefore, proper mitigation, adaptive measures and financial assistance is needed for SIDS management**.**

Paper : Environmental Change Detection of Urban Land Cover, Agriculture, Forest and Sea Surface Temperatures using Satellite Data

Author : Dr. Badar Ghauri

Recommendations :

The process of change detection has played a key role in monitoring, assessment and management of resources and in overall development planning of a country. Such studies also facilitate quantitative assessment of various environmental impacts and help devise remedial strategies. Despite some increase in cultivated area, some of the alarming changes noticed in this study are rapid depletion of forested areas including coastal forests, increase in drought affected areas, rapid urban sprawl, deteriorating regional and air quality, and information on sea surface temperatures. Such studies provide a real linkage to the precursors of such changes and would enable the relevant agencies to take notice of these adverse changes and suggest remedial measures in future planning.

Paper : Effects of Climate Change on Small Island Developing States (SIDs) and their Mitigation

Author : Engr. Riaz Nazir Tarar

Recommendations :

General
These countries have neither the financial resources nor the technical capacities to meet their adaptation needs. Therefore, the international community should provide stronger financial and technical support to both through the special funds as the Least Developed Countries Fund and other international frameworks, including the Brussels Programme of Action for the LDCs and

the Barbados Programme of Action for SIDS. In case of SIDS, consideration should be given to establishing a special fund for them along the lines of the LDC fund.

These countries should significantly enhance their adaptation capacity through regional arrangements and pooling of resources. For example, it might be more efficient to establish and manage early warning systems at regional rather than national levels.

These countries need to bring their influence to bear within the G 77 / China to gain support for significant reductions in global GHG emissions.

In comparison with other regions of the world, SIDS have a high awareness of the impacts of climate change and the need to adapt, and are advanced in mainstreaming adaptation into their policy frameworks and development efforts. There are many adaptation projects on the ground with more projects in the pipeline but there are still barriers to adaptation that need to be removed.

Avenues for regional cooperation and sharing of traditional knowledge, project outcomes and technical data are extensive and should be exploited to help identify and remove barriers to adaptation. In addition to this, the following issues should be included in the agenda of Doha: -

1. How can outcomes of completed projects be disseminated effectively so that the information can be used by others?

2. Decline in the use of local coping strategies and traditional knowledge is suggested as one reason for increased vulnerability of SIDS to climate change. However, does the reverse occur? Are some local coping strategies outdated and perhaps maladaptive? How can a balance be reached between modern technologies and traditional strategies in adapting to climate change?

3. Is insurance the most suitable mechanism for risk transfer? What needs to be done first in order for insurance schemes to be successful (e.g. comprehensive risk assessment)?

4. With adaptation being carried out by many different organizations, how can future adaptation projects be coordinated so that it is ensured that vulnerable sectors, areas or communities are not overlooked?

5. International migration from island countries to other island countries or larger states; or the internal migration of islanders between different islands poses political, socio-economic and ethical questions. How will climate change impact on this issue?

6. How are the policies of other countries likely to affect adaptation to climate change in SIDS, for example, in terms of immigration and foreign trade policies?

7. How can existing networks and organizations be better used to improve cooperation on adaptation and increase adaptation activities?

Paper : Disaster Vulnerability, Risk Reduction and Mitigation in Small Island Developing States

Author : Ms. Saba Dar, Ali Hasnain Sayed and Sohail Ali Naqvi

Recommendations :

Given the current scenario, efforts to enhance island reliance must be mainstreamed into general development policy formulation. Small islands need their voice to be heard at the international for a, in the WTO, the UN system and international climate change talks. SIDS should tap the regional co-operation, international linkages and funding and invest on DRR.

Nevertheless, much remains to be done to turn rhetoric into action.

Paper : **Disaster Vulnerability of Small Island Developing States to Climate Change**

Author : **M. Zia ur Rahman Hashmi, M. Munir Sheikh, M. Mohsin Iqbal, Ghazanfar Ali and Arshad M. Khan**

Recommendations :

This paper aimed to explore climate change, vulnerabilities and adaptation possibilities of SIDS. Climate change is a major challenge for SIDS alongside some other challenges such as small population, limited resources, remoteness susceptibility to natural disasters, vulnerability to external shocks and excessive dependence on international trade. In terms of current and future climate change, SIDS are no exception to what is happening globally and are experiencing rising temperatures and associated changes in other climatic features. Among the climate change impacts sea level rise caused by global ice melting and thermal sea expansion is a major threat for SIDS and almost all of their adaptation strategies mainly focus on it.

The projected changes are likely to exacerbate the current climate-related stresses in various SIDS, particularly;

- Higher temperatures are expected to adversely affect the health of some island inhabitants who already suffer through heat waves and associated increased outbreaks of vector borne diseases. The health of important marine species such as coral reefs will also suffer.

- Changes in seasonal rainfall patterns may take the form of more frequent and more intense droughts and floods for many of the already troubled SIDS.

Although natural systems and people living in SIDS have developed a wide range of adaptive strategies and measures to cope with a certain degree of change in climate and sea level, in many of these nations the environment and various biological systems are already close to their tolerance limits or are experiencing climate related stress. Their vulnerability to climate change – already high – thus worsens with each passing year.

One of the major research gaps identified by the authors of IPCC AR5 chapter on SIDS is that there is very little published literature documenting the probability, frequency, severity or consequences of climate change risks such as sea-level rise, ocean acidification, and salinization of freshwater resources – or associated adaptation measures. There is a need for providing adequate funding to SIDS by the international agencies so that suitable adaptation action are taken well before any major climate change induced catastrophes cause them irreversible damage.

Paper : **Effects of Climate Change on Small Island Developing States (SIDs) and its Mitigation**

Author : **Dr. Abdul Aleem Chaudhry**

Recommendations :

Proceed with utmost caution to ensure continued functioning of oceans in sustaining life on earth:

- Adopt the most stringent and rapid reductions in greenhouse gas emissions, to avoid disasters consequences on oceans, small islands and coastal communities around the

world. Compelling scientific evidence indicates that to safeguard the essential role of oceans in regulating climate and sustain the productive functions of marine eco systems, adoption of policy with peak atmospheric carbon dioxide levels no higher than 450 ppm, and commitment to bring CO2 levels below 350 ppm with urgency are required.

- Give special consideration to SIDS and especially vulnerable coastal nations.

- Promote management of natural carbon sinks in coastal areas.

- To protect bio-diversity, save and restore global fisheries, recognize the deep links between eco-system degradation and rural poverty, and change the 'world view' on the economic value of marine eco-systems and bio-diversity to sustainable development of a low-or-no carbon 'green economy' and a 'blue' society.

- Establish global governance frameworks for ocean-related geo-engineering research and potential use.

- Manage natural eco systems to boost ecological resilience in a changing climate. Protecting eco-system components such as biological diversity and ecologically important species have been shown to improve resilience and recovery from climate change impacts across many eco-systems.

- Gather and exchange information, improve public awareness and early warning system capacity for climate change impacts on marine eco systems, communities, fisheries and other industries as well as emergency preparedness, monitoring, and forecasting of extreme events and ocean variability.

- Enhance, at regional and national levels, exchange of lessons experienced and best practices, and climate vulnerability assessment of oceans coasts in order to facilitate the implementation of adaption measures.

- Operate in furthering marine scientific research and sustaining integrated ocean observation system ; promote education and public awareness; and collaborate to improve understanding of the role of oceans in climate change and vice-versa including effects on marine eco system, marine bio diversity and coastal communities especially in developing countries and small islands states.

- Invite scientific communities and institutions to further develop reliable scientific information on the roles of coastal wetland, mangrove, algae, sea grass and coral reef ecosystem in reducing the effects of climate change, and share knowledge of best practices based on the dynamic relationship between oceans and climate.

Paper : Small Island States of Indian Ocean and Impacts of Climate Change and its Mitigation

Author : Mr. Attia Dastgir, Engr. Sarfraz Naseer and Engr. Ishteqaq Kaukab

Recommendations :

For most Indian Ocean Small Island States, there seem little choice but to attempt to reduce the exposure to climate change risks of the most vulnerable populations, build resilience where possible and salvage what they can of their ecosystems to prevent further degradation and virtual extinction. Following mitigation measures may be adopted.

To cope with increasing temperature and salt water intrusion in coastal regions, adaptation include planting draught / salt tolerant and deep rooted crop varieties, changing in farm

management to improve water retention capacity and culturing of salinity tolerant fish and prawns such as Chanos chanos and Machrobracium rosenbergli, etc.

In case of sea level rise in IO-SIS, the tackling of this problem may involve shifting anthropogenic activities higher or further inland, building sea walls and mangrove rehabilitation.

To mitigate the impact of climate change on biodiversity the measures include, ecosystem based adaptation incorporating sustainable management, conservation and restoration of biodiversity and ecosystem services.
To adopt to increased intensity of extreme events, IO-SISs need to adopt improved use of climate and weather data, weather forecasts and other management tools.

The challenges of public health deterioration in the backdrop of climate change in IO-SISs need to be tackled through awareness of this effect on public health and development of early warming system about outbreak. Provision of better medical facilities to isolated, remote and marginalized settlements will also go many a mile in combating such menacing outbreaks.

To improve the ground reality of adaptability and resilience in case of climate change triggered disaster. The identification of plan of refuge and evacuation, early warming system, improved use of climate and weather data and forecasts are important measures.

Last but not least important is the poverty alleviation in IO-SISs countries, which is an inherent cause of vulnerability towards devastation of climate change.

Paper : Environmental Ethics (a Prologue to Sustenance from Air to Oceans and from Islands to Mainlands)

Author : Engr. Usman-e-Ghani

Recommendations :

Michael Collins said of earth on looking at the view as it appears from the space :

“What I saw when I looked back at my fragile home – a glistening, inviting beacon, delicate blue and white – a tiny outpost suspended in the black infinity. Earth is to be treasured and nurtured, something precious that must endure”.

There is a vision of an earth ethic in what he saw. But – as the argument goes – there are the duties owed by the people to other people, caring for the planet is a means to this end. Environmental ethics on global and regional scales is inextricably coupled with development ethics. The Rio Declaration notes :

“Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature”.

The United Nations World Commission on Environment and Development declares :

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Science, technology, industry, democracy, human rights, freedom, preference satisfaction, maximizing benefits over costs, consumerism – all are supposed to be bound by professional or management ethics – as all of them are seriously implicated as cause of the environmental crisis of today. Development of today may be based upon the enlightened myths – whether one may consider agricultural development, forests cut, rivers dammed and diverted for water, lands fenced, minerals extracted, or highways and subdivisions built – but the next hundred years

may not be similar to that of the last hundred years. None of even the developed nations have yet fully settled into a sustainable culture on their landscapes. On the scales on the other hand, 'sustainable' still means 'fair' or 'just', much against the pure ethics of eco-justice.

On earth, the developed nations hold about one-fifth of the world's 7 billion persons, and they produce and consume about four-fifths of all goods and services. The underdeveloped nations, with four-fifths of the world's people, produce and consume one-fifth. The over-consumption problem in the developed nations is linked with the under-consumption problem in the developing nations. The results in increasing environmental degradation in both sets of nations.

Even if there would have been equitable distribution of wealth, the human population cannot go on escalating without people becoming poorer, because the pie is to be constantly divided into smaller pieces. Even if there were no future population growth, consumption patterns cannot go on escalating in a finite earth.

Hence, it is not enough to be a good 'citizen', for that is only half the truth. In the nineteenth century, the call for community was typically phrased as the brotherhood of man. For most of the twentieth century the call, however, was phrased in justice and human rights. But now, such a call must be globally ecological. Ethics, therefore, are getting expanded. Now they are not just what a society does to its slaves, women, blacks, minorities, handicapped, children or future generations, but they are also what a society does to its fauna, flora, species, ecosystems and landscapes. Similar points about the role of empirical investigations can also be made about theorizing over a range of other problems, including drought, the preservation of biodiversity, and climate change.

Side by side, where it has become common to refer to the present era as "the age of terror", there is increasing agreement across the entire globe that the world is facing chronic and unprecedented environmental problems, most of them from the human origin. The United States military, responding to a report on abrupt climate change prepared for the Pentagon by the Global Business Network (Schwartz and Randall 2003), declared that the problems of adjustment to climate change constitute a far more severe threat to national and international security than does terrorism itself. The continuing destruction of natural environments and the widespread loss of both plant and animal species, as well as those of other ecological constituents, pose an increasing problem for other forms of life on the planet. In facing these problems, there will likely be many great opportunities for co-operation and synergy between the world leaders, philosophers and both natural and the social scientists.

However, like many other important and interesting questions, no single discipline could claim sole ownership of the issue as has been raised about the origins of modern environmental crisis and the quandaries we now face. An inquiry and a report may hence be inevitable nor only in environmental ethics, but also in all other areas of knowledge, as well as those of political / practical philosophy.