

ILLUME

QUARTERLY

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CLIMATE CHANGE ADAPTABILITY



INSIDE THIS ISSUE

- ▶ MANGROVE ECO SYSTEM BY MALIK MUHAMMAD KHAN
- ▶ CLIMATE CHANGE: STUDENTS PERSPECTIVE
- ▶ NATIONAL MANGROVES CONFERENCE

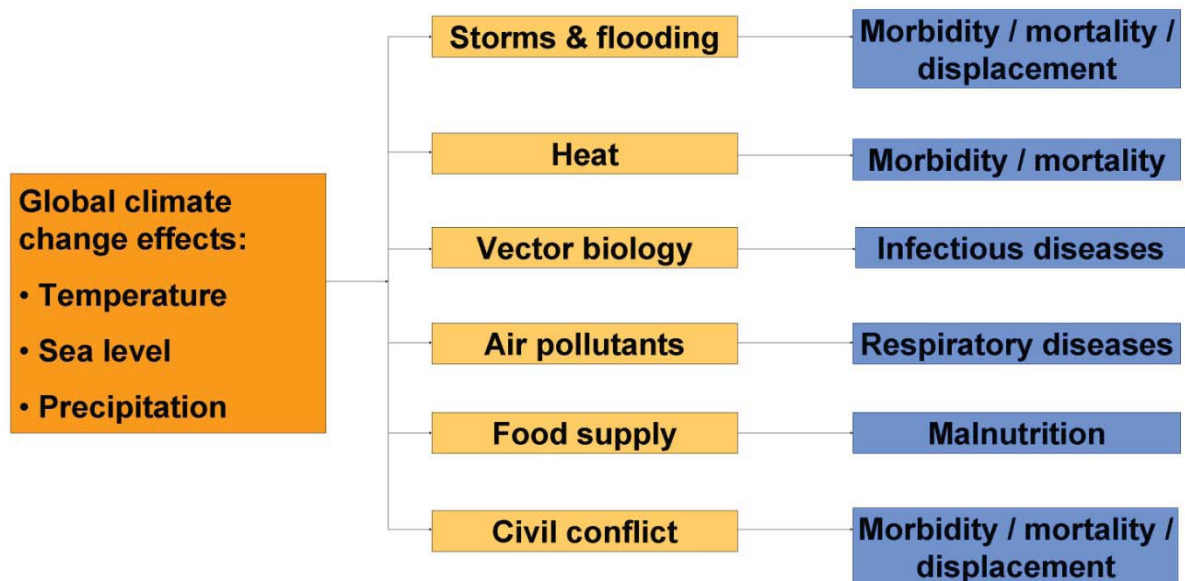
“Climate change poses clear, catastrophic threats. We may not agree on the extent, but we certainly can’t afford the risk of inaction.” **Rupert Murdoch**

“Climate change is real. The science is compelling. And the longer we wait, the harder the problem will be to solve.” **John Kerry - Senior Senator USA**

“For my generation, coming of age at the height of the Cold War, fear of nuclear winter seemed the leading existential threat on the horizon. But the danger posed by war to all humanity and to our planet is at least matched by climate change.” **Ban Ki-moon – UN Secretary General**

INTERESTING FACTS ON CLIMATE CHANGE

Potential Impacts of Global Climate Change on Human Health



CLIMATE CHANGE AND URBAN CHALLENGES:

Climate change is a serious concern around the globe, where Pakistan is at such a geographical position that it is at a high risk to be get effected by numerous climatic catastrophes. From melting glaciers to rising water levels, from floods to heat waves Pakistan is going through number of challenges and testing both indigenus knowledge and technology to cope with it at all levels.

The rapid urbanization and change in life style is one major dimension which is still ignored and requires a serious policy over hauling in order to reduce the gap of awareness and education towards climate change. Technology led life style has obviously strengthened communication and information flow but at the cost of serious damage to the climate and especially forests. Paved cemented roads and emerging housing societies are other serious factors, which produces heat waves along with burning fuels of vehicles, electric advertising boards, sky rocketing shopping plazas and expansion of industrial areas.

The urban planning needs to be revisited in order to develop a sustainable style where the earth and nature is fairly distributed with space and environment in order to produce clean ventilated air along with a natural grip on the temperature and forest conservation.

Pakistan is in serious need of moral support where sensitized champions of change should move forward to spread the message of using balanced energy for protecting green environments, the political support on the other hand will surely support the agenda at the higher level where financial backup can produce larger campaigns to conserve remaining forests, re-plantation and channelizing population bomb with natural resources and earth's carrying capacity.

Shaheer Ellahi

Editor

GLOBAL, REGIONAL AND NATIONAL UPDATES

The UN's Intergovernmental Panel on Climate Change (IPCC) examined a range of emissions scenarios. In the scenario where the rise in greenhouse emissions doesn't level off until the latter part of the century, the best estimate temperature rise by 2100 came out at 4.0C, with a "likely range" of 2.4–6.4C. By contrast, in a scenario where emissions were very rapidly brought down, the best estimate was 1.8 degrees, with a likely range of 1.1–2.9C. Because of inertia in the climate system and the long life of some greenhouse gases in the atmosphere, scientists estimate that the world would continue to warm substantially by roughly a further 0.6C even if humans completely stopped emitting greenhouse gases today. However much the temperature rises, there will still be regional variation.



On the other hand there is some evidence that climate change is already having a measurable effect on the quality and quantity of food produced globally but this is small when compared with the significant increase in global food production that has been achieved over the past few decades. Isolating the influence of climatic change from all the other trends is difficult, but one recent Stanford University study found that increases in global production of maize and wheat since 1980 would have been about 5% higher were it not for climate change. All else being equal, rising carbon dioxide concentrations, the main driver of climate change could

increase production of some crops, such as rice, soybean and wheat. However, the changing climate would affect the length and quality of the growing season and farmers could experience increasing damage to their crops, caused by a rising intensity of droughts, flooding or fires.

Food is one of society's key sensitivities to climate. A year of not enough or too much rainfall, a hot spell or cold snap at the wrong time, or extremes, like flooding and storms, can have a significant effect on local crop yields and livestock production. While modern farming technologies and techniques have helped to reduce this vulnerability and boost production, the impact of recent droughts in the USA, China and Russia on global cereal production highlight a glaring potential future vulnerability.

One of the most populous regions on earth, South Asia is rich in its production of food commodities. As per the World Bank's estimates, over 70 percent of the region's population dwells in rural areas with agriculture being their livelihood. In Pakistan, agriculture is the mainstay of



the country's economy. According to Pakistan Economic Survey 2011-12, the agriculture sector is the second largest sector of the economy and contributes about 21 percent to the GDP. It generates productive employment opportunities for 45 percent of the country's labour force and 60 percent of the rural population depends directly or indirectly upon this sector for its livelihood. The current agriculture system is creating in-equality and food insecurity. About 40 percent of people are food insecure in the country and small farmers have no say in the decision-making process. Agriculture is no longer profitable for small farmers. They are abandoning their profession and migrating to cities. This sector is continuously witnessing a downward trend as it has registered an overall decline of 10 percent in several major and minor crops during the last three years.

MANGROVE ECOSYSTEM

Malik Muhammad Khan

Chief Conservator Forests (Rtd.), Punjab Forest Department



Mangroves are various kinds of trees up to medium height and shrubs that grow in saline coastal sediment habitats in the tropics and subtropics – mainly between latitudes 25° N and 25° S. The word is used in at least three senses: (1) most broadly to refer to the habitat and entire plant assemblage or mangal, for which the terms mangrove forest biome, mangrove swamp and mangrove forest are also used, (2) to refer to all trees and large shrubs in the mangrove swamp, and (3) narrowly to refer to the mangrove family of plants, the Rhizophoraceae, or even more specifically just to mangrove trees of the genus *Rhizophora*.

The mangrove biome, or mangal, is a distinct saline woodland or shrub-land habitat characterized by a depositional coastal environments, where fine sediments (often with high organic contents) collect in areas protected from high-energy wave action. Mangroves dominate three quarters of tropical coastlines. The saline conditions tolerated by various mangrove species range from brackish water, through pure seawater (30 to 40 ppt), to water concentrated by evaporation to over twice the salinity of ocean seawater (up to 90 ppt).

MANGROVE ECOLOGY

Mangrove “swamps” are found in tropical and subtropical tidal areas. Areas where mangals occur include estuaries and marine shorelines.

The intertidal existence to which these trees are adapted to represents the major limitation to the number of species able to thrive in their habitat. High tide brings in salt water, and when the tide recedes, solar evaporation of the seawater in the soil leads to further increases in salinity percentage. The return of tide can flush out these soils, bringing them





back to salinity levels comparable to that of seawater. At low tide, organisms are also exposed to increases in temperature and desiccation, and are then cooled and flooded by the tide. Thus, in order for a plant to survive in this environment, it must tolerate broad ranges of salinity, temperature, and moisture, as well as a number of other key environmental factors. It is unsurprising, perhaps, that only a select few species make up the mangrove tree community.

About 110 species are considered “mangroves”, in the strict sense of being a tree that grows in such a saline swamp, though only a few are from the mangrove plant genus, *Rhizophora*. However, a given mangrove swamp typically features only a small number of tree species. It is not uncommon for a mangrove forest in the Caribbean to feature only three or four tree species. For comparison, the tropical rainforest biome contains thousands of tree species. That is not to say that mangrove forests



lack biological diversity. Though the trees themselves are few in species, the ecosystem that these trees create provides a home for a great variety of other organisms.

Mangrove plants require a number of physiological adaptations to overcome the problems of anoxia (means a total decrease in the level of oxygen, an extreme form of hypoxia or “low oxygen”), high salinity and frequent tidal inundation. Each species has its own solutions to these problems; this may be the primary reason why, on some shorelines, mangrove tree species show distinct zonation. Small environmental variations within a mangal may lead to greatly differing methods for coping with the environment. Therefore, the mix of species is partly determined by the tolerances of individual species to physical conditions, like tidal inundation and salinity, but may also be influenced by other factors such as predation of plant seedlings by crabs.

Mangrove swamps protect coastal areas from erosion, storm surge (especially during hurricanes),

and tsunamis. The mangroves' massive root systems are efficient at dissipating wave energy. Likewise, they slow down tidal water enough that its sediment is deposited as the tide comes in, leaving all except fine particles when the tide ebbs. In this way, mangroves build their own environment. Because of the uniqueness of mangrove ecosystems and the protection against erosion they provide, they are often the object of conservation programs, including national biodiversity action plans.

However, mangrove swamps' protective value is sometimes overstated. Wave energy is typically low in areas where mangroves grow, so their exact effect on erosion can only be measured over long periods. Their capacity to limit high-energy wave erosion is limited to events such as storm surges and tsunamis. Erosion often occurs on the outer sides of bends in river channels that wind through mangroves, while new stands of mangroves are appearing on the inner sides where sediment is accruing.

The unique ecosystem found in the intricate mesh of mangrove roots offers a quiet marine region for young organisms. In areas where roots are permanently submerged, the organisms they host include algae, barnacles, oysters, sponges, and bryozoans, which all require a hard surface for anchoring while they filter feed. Shrimps and mud lobsters use the muddy bottoms as their home. Mangrove crabs mulch the mangrove leaves, adding nutrients to the mangal mud for other bottom feeders. In at least some cases, export of carbon fixed in mangroves is important in coastal food webs.

Mangrove plantations in Vietnam, Thailand, the Philippines and India host several commercially important species of fish and crustaceans. Despite restoration efforts, developers and others have removed over half of the world's mangroves in recent times.

Pakistan's mangrove ecosystem (shranked from 260, 000 ha to 143,000 ha) is one of the largest found in an arid climate. Without realising their global significance, the local communities continue to use mangroves as fuelwood and fodder. In urban areas, mangroves are being cut away for developmental activities on the coast.

The objectives of the WWF - Pakistan project include rehabilitation of mangrove-degraded areas at Sonmiani and Jiwani in Balochistan, and Sandspit in Karachi, Sindh. WWF - Pakistan initiated a two-pronged approach in this area, i.e. mangrove plantation and community mobilization, simultaneously. So far a total of 200 hectares have been rehabilitated in Sonmiani, Jiwani and Sandspit. *Rhizophora mucronata*, *Ceriops tagal* and *Avicennia marina* have been planted in Miani Hor (Sonmiani), while in other areas only *Avicennia marina* has been sown. Four mangrove nurseries, established at three sites, have been stocked with 40,000 saplings, The local community is being mobilized by enhancing awareness on the significance of mangroves for livelihood and by persuading the local people to take responsibility for conserving mangroves. Many Community Based Organisations (CBOs) have been established and their capacities enhanced through various training programmes to initiate conservation and development activities in the area for effective and meaningful conservation of ecosystem.

The communities are actively participating in mangrove plantation, nursery raising and monitoring. An educational centre for women has been established in Kakapir Village where about 70 girls of 5 – 27 years are given informal education. In order to improve the living conditions of women, a health need assessment of the community has been made.

Recognizing the social, ecological and economic significance of the mangrove forests, Shell Pakistan Limited, a corporate member of WWF - Pakistan has agreed to support a mangrove conservation initiative. Thus, another project has been initiated on Conservation of Mangrove Ecosystem in the Korangi – Phitti Creek System, in the Indus Delta with their support. The project aims to conserve selected degraded mangrove forests in the Korangi – Phitti creek area through involvement of community, local school children and other stakeholders like Port Qasim Authority and the Government Forest Department.

CLIMATE CHANGE: A STUDENTS PERSPECTIVE

Mubashar Tanvir

Climate change is such a reality that we can no longer afford to ignore. It has extensive damaging impacts on the environment.

Climate change is a long-term change in the earth's climate, especially a change due to an increase in the average atmospheric temperature. Climate change is a long time environmental condition of an area. Rise in global temperatures have been accompanied by climate change. We have seen changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves at many places. The planet's oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising. As these and other changes become more prominent in the coming decades, they will likely present challenges to our society and our environment.



Climate change is caused by many factors by human and natural. The major factor is by human. Human causes the climate change in many ways, the green house emissions by burning of fossil fuels, release of CO₂, deforestation, air travel and use of automobiles. Over the past century, human activities have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere. The majority of greenhouse gases come from burning fossil fuels to produce energy, although deforestation, industrial processes, and some agricultural practices also emit gases into the atmosphere.

Climate change can affect our water supplies, agriculture, power and transportation systems, the natural environment, and even our own health and safety. Climate change effects in terms of glaciers melting, rise in sea level, change in precipitation patterns, flooding and droughts etc, heavier rains bring floods. We cannot forget the floods of 2010 in Pakistan. Pakistan is most vulnerable to climate change as it is in the region of melting glaciers. Pakistan has been to be found among the 'high risk' category of countries impacted by climate change.

Pakistan has been ranked among the top 10 highly vulnerable countries impacted by climate change. The melting Himalayas cause a serious risk to the sustainability of water resources in the region.

South Asia, with a large population base, is vulnerable to greater disasters in the wake of climate change as more than 750 million people in the region have been affected by natural disasters in the last two decades. Climate change is going to affect Sindh's water availability, cultivation and socio-economic conditions, as the province is the lowest riparian of the Indus River System.

UK coastal waters have warmed by about 0.7 degrees Celsius over the past three decades. In addition, the average sea level around the UK is now about 10 centimeters higher than it was in 1900. Globally, the average sea level could rise by 18 to 59 centimeters, or more, by the end of the century. The amount of winter rainfall in England and Wales has risen slightly. The change in precipitation pattern in Pakistan has extensively affected our agriculture and economy.

Today the livelihood of most people depends on agriculture and these people are at most risk to climate change such as droughts and flooding adversely affects the crop production. Agriculture is important for food security in two ways: it produces the food people eat; and it provide source of livelihood.

Higher temperatures also increase evaporation from plants and soils, increasing water requirements while lowering water availability. The unpredictable rainfall and it's unreliability in timing and volume is changing the growing seasons in many places. This is leading to greater uncertainty and delicate risks for farmers.

Climate change will further reduce access to drinking water, negatively affect the health of poor people, and will prose a real threat to food security in many countries in Africa, Asia, and Latin America.

Agriculture is the source of income of many families in developing countries as floods come or frequency of rains decreases to greater level like drought conditions.

The solution lies in understanding the climate and environment of the region and taking preventive measures to frustrate them. With an alarming rise in the frequency of disasters, Pakistan needs to consider a long-term master plan for disaster risk reduction. Pakistan needs to adopt an approach of climatically appropriate development planning.

CLIMATE CHANGE: A GLOBAL CHALLENGE

Climate includes patterns of temperature, precipitation, humidity, wind and seasons. "Climate change" affects more than just a change in the weather; it refers to seasonal changes over a long period of time. These climate patterns play a fundamental role in shaping natural ecosystems, and the human economies and cultures that depend on them. Some short-term climate variation is normal, but longer-term trends now indicate a changing climate. A year or two of an extreme change in temperature or other condition doesn't mean a climate change trend has been "erased."

Earth's average temperature has risen by 1.4°F over the past century, and is projected to rise another 2 to 11.5°F over the next hundred years. Small changes in the average temperature of the planet can translate to large and potentially dangerous shifts in climate and weather.

Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. The planet's oceans and glaciers have also experienced some big changes - oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising. As these and other changes become more pronounced in the coming decades, they will likely present challenges to our society and our environment.

If we look at the historical record it shows that the climate system varies naturally over a wide range of time scales. In general, climate changes before to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes



in greenhouse gas (GHG) concentrations.

Along with the natural sources anthropogenic activities are the highest contributor to the disaster being caused to the environment in the form of climate change and disruption. These gases are triggering a large percentage of global warming. Human life activities starting from domestic to collective level are day by day deteriorating the natural environment.

Human Interventions

Over the past century, human activities have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere. The majority of greenhouse gases come from burning fossil fuels to produce energy, although deforestation, industrial processes, and some agricultural practices also emit gases into the atmosphere.

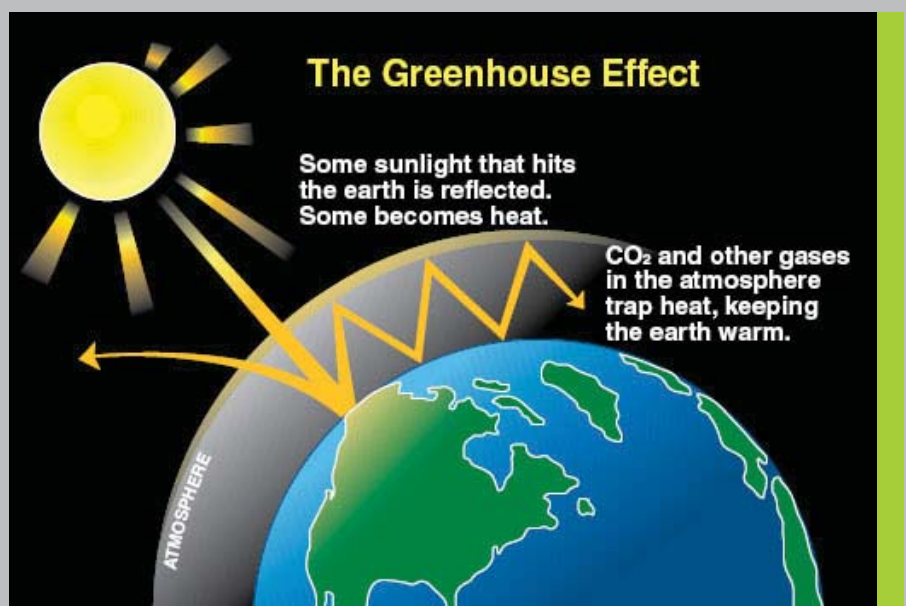
Greenhouse Effect

The greenhouse effect occurs as a result of greenhouse gases trapping the sun's heat and keeping it close to the earth. These gases act like a blanket around Earth, trapping energy in the atmosphere and causing it to warm. This phenomenon is called the greenhouse effect and is natural and necessary to support life on Earth. However, the buildup of greenhouse gases can change Earth's climate and result in dangerous effects to human health and welfare and to ecosystems. Greenhouse gases include carbon dioxide, methane, nitrous oxide, and fluorinated gases. Scientists say that increased levels of these gases are contributing to climate change.

• Greenhouse Effect in the Past

In the distant past (prior to about 10,000 years ago), CO₂ levels tended to track the glacial cycles. During warm 'interglacial' periods, CO₂ levels have been higher. During cool 'glacial' periods, CO₂ levels have been lower. This is because the heating or cooling of Earth's surface can cause changes in greenhouse gas concentrations. These changes often act as a positive feedback, amplifying existing temperature changes.

Estimates of the Earth's changing carbon dioxide (CO₂) concentration (top) and Antarctic temperature (bottom), based on analysis of ice core data extending back 800,000 years. Until the past century, natural factors caused atmospheric CO₂ concentrations to vary within a range of about 180 to 300 parts per million by volume (ppmv). Warmer periods coincide with periods of relatively high CO₂ concentrations.



• The Recent Role of the Greenhouse

Human activities have contributed substantially to climate change by adding greenhouse gases to the atmosphere since the Industrial Revolution around 1750. These greenhouse gas emissions have increased the greenhouse effect and caused Earth's surface temperature to rise. The primary human activity affecting the amount and rate of climate change is greenhouse gas emissions from the burning of fossil fuels.

Global greenhouse gas emissions can also be broken down by the economic activities that lead to their production.

- **Energy**

The burning of coal, natural gas, and oil for electricity and heat is the largest single source of global greenhouse gas emissions.

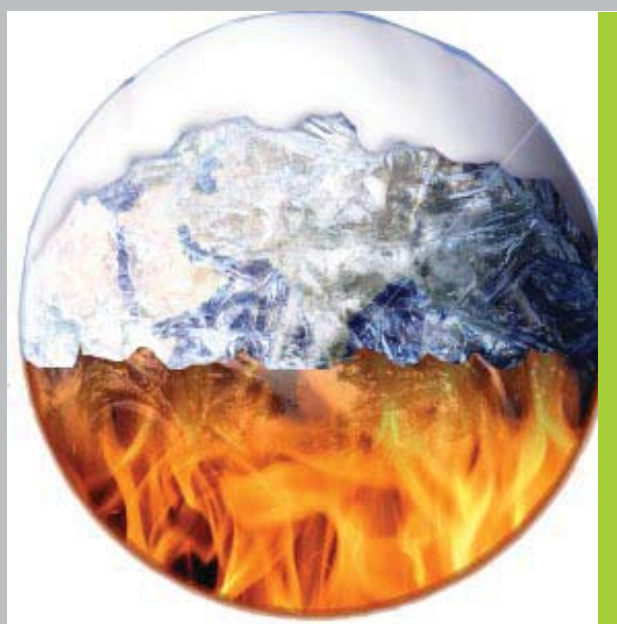
- **Industry**

Greenhouse gas emissions from industry primarily involve fossil fuels burned on-site at facilities for energy. This sector also includes emissions from chemical, metallurgical, and mineral transformation processes not associated with energy consumption



- **Land and Forestry:**

Greenhouse gas emissions from this sector primarily include carbon dioxide (CO₂) emissions from deforestation, land clearing for agriculture, and fires or decay of peat soils. This estimate does not include the CO₂ that ecosystems remove from the atmosphere. The amount of CO₂ that is removed is subject to large uncertainty, although recent estimates indicate that on a global scale, ecosystems on land remove about twice as much CO₂ as is lost by deforestation.



- **Agriculture:**

Greenhouse gas emissions from agriculture mostly come from the management of agricultural soils, livestock, rice production, and biomass burning.

- **Transportation:**

Greenhouse gas emissions from this sector primarily involve fossil fuels burned for road, rail, air, and marine transportation. Almost all (95%) of the world's transportation energy comes from petroleum-based fuels, largely gasoline and diesel.

- **Commercial and Residential Buildings:**

Greenhouse gas emissions from this sector arise from on-site energy generation and burning fuels for heat in buildings or cooking in homes.

- **Waste and Waste Water:**

The largest source of greenhouse gas emissions in this sector is landfill methane (CH₄), followed by wastewater methane (CH₄) and nitrous oxide (N₂O). Incineration of some waste products that were made with fossil fuels, such as plastics and synthetic textiles, also results in minor emissions of CO₂.

CLIMATE CHANGE AND PAKISTAN

Climate change has wide ranging effects on the environment, and on socio-economic and related sectors, including water resources, agriculture and food security, human health, terrestrial ecosystems and biodiversity and coastal zones. Changes in rainfall pattern are likely to lead to severe water shortages and/or flooding. Melting of glaciers can cause flooding and soil erosion.



Rising temperatures cause shifts in crop growing seasons which affects food security and changes in the distribution of disease vectors putting more people at risk from diseases such as malaria and dengue fever.

Temperature increases potentially severely increase rates of extinction for many habitats and species (up to 30 per cent with a 2° C rise in temperature). Particularly affecting coral reefs, boreal forests, Mediterranean and mountain habitats. Increasing sea levels mean greater risk of storm surge, inundation and wave damage to coastlines, particularly in small Island States and countries with low lying deltas. Rise in extreme events are effecting on health and lives as well as associated environmental and economic impacts.

- **Impact on Agriculture and fishery**

Agriculture and fishery mainly depends on irrigation system which can directly be affected by climate change. Increase in temperature by Climate Change for some crops is good but frequent and severe changes could result in droughts and floods that could pose challenges for farmers and ranchers. In the same way climate change cause the habitat ranges of many fish and shellfish species to shift, which could disrupt ecosystems. This all could result in more difficult growth of crops, raise animals, and catch fish in the same ways and same places as we have done in the past. So when climate is changing and affecting the agriculture system farming practices and technology also get change. This on the whole reduces crop yield.



- **Impacts on Livestock:**

Climate change also has adverse effect on livestock. Excessive heat can increase vulnerability to disease, reduce fertility, and milk production. Droughts may affect meadows and other feeding sources of livestock and also reduces the amount of quality forage available to grazing livestock. Increases in carbon dioxide (CO₂) may increase the productivity of pastures, but may also decrease their quality. Increases in atmospheric CO₂ can increase the productivity of plants on which livestock feed.

Climate change impacts on agriculture and food production will vary by region. In some places, warmer temperatures may extend the growing season, while in other regions more heavy downpours may increase crop losses.

Pakistan has agriculture economy heavily dependent on natural resources. Pakistan's irrigation system is considered to be amongst world's largest systems.

GEOGRAPHICAL LOCATION AND CLIMATE OF PAKISTAN

According to the climate, 59% of the annual rainfall is due to monsoon rains; a dominant hydro-meteorological resource for Pakistan. Its rivers are predominantly fed by the Hindu Kush-Karakoram-Himalayan (HKH) glaciers which are reported to be receding rapidly due to global warming. Greater Himalayan region above 35°N receives winter precipitation mostly in the form of snow and ice. The snow melt contribution keeps the rivers perennial throughout the year. The coastal climate is confined to a narrow strip along the coast in the south and southeast, the north is dominated by the mountain climate ranging from humid to arid. In between, the climate is broadly of tropical continental nature.

EFFECT OF CLIMATE CHANGE

Pakistan is particularly vulnerable to climate change because the country has generally a warm climate, it lies in a geographical region where the temperature increases are expected to be higher than the global average and faces increasingly larger risks of variability in monsoon rains, hence large floods and extended droughts. Snow is melting at a very faster pace, creating problems in Pakistani rivers. Indus River is severely affected by climate change. Under the influence of all these factors the water, food and energy security of the country are under serious threat.

• **Bio-diversity of Pakistan**

Bio-diversity of Pakistan is also being affected by Climate Change. Dolphin is indigenous to Indus River. Due to the construction of Pakistan's extensive irrigation system on Indus River, the dolphin is already jumped into world's most endangered mammals. Further rise in sea level due to climate change may totally disappear this endangered mammal from this planet earth.

• **Deforestation**

Despite a raised awareness level in Pakistan, a cohesive approach is amiss. Besides policy failure in the energy sector, deforestation is taking place at a rapid speed. There have been numerous reports of tree-cutting at a rapid pace, in and around the large cities of the country. The floods' destructiveness was intensified by Pakistan's frequent deforestation. UN data and Pakistani media reports paint an alarming picture of this emissions-releasing scourge: Pakistan suffers from the highest annual rate of deforestation in Asia (the nation lost 33 percent of its forest cover between 1990 and 2010), with barely 2 percent of the country's total area remaining forested today.

NATIONAL CONFERENCE ON MANGROVES ECOSYSTEM IN PAKISTAN; SHARING OF EXPERIENCES WITH POLICY MAKERS

Pakistan once had the world's sixth largest mangrove forest in the Indus Delta, covering 345,000 hectares of land, but after a rapid reduction, its position dropped to 35th in the world. This rapid reduction has a variety of reasons associated with a range of stakeholders in the downstream as well as upstream. Based on these learning "**Mangroves For Future**" (MFF) programme was initiated by IUCN for conservation and rehabilitation of mangroves in various countries. Pakistan is one of these countries.



A national conference was organized to highlight the value of Mangroves Forests, commonly known as coastal forests or swamp forests in Karachi on March 08-09, 2012.

This conference was organized by **Human Resource Development Network (HRDN)** in collaboration with Mangroves for Future (MFF) Programme of **IUCN**.

Outputs of the Conference:

- Increased awareness among 100 key stakeholders in Pakistan about mangroves, their importance, conservation, restoration and sustainable management.
- At least 20% of the participating organizations incorporate environment as their cross cutting theme.

Field Trip for Mangroves plantation

On March 9, around 80 members of the Human Resources Development Network (HRDN) along with the officials of Sindh forest department planted 300 mangrove saplings on a mud flat in Jhari creek about 1.5 nautical miles from the Korangi Fish Harbour.



This activity was part of an awareness campaign undertaken by HRDN with the support Mangroves



for the Future, a regional initiative for the conservation and rehabilitation of the coastal ecosystems.

MEDIA DEBRIEFING SESSION OF THE NATIONAL CONFERENCE

Rafi ul Haq, National Coordinator, Pakistan, of the MFF led the plantation drive and explained how the artificial plantation process works to increase the covered area of the mangroves to increase the bio shield against natural disasters. He especially appreciated the contribution of Pakistan Navy, the only Force in the entire MFF region that is a member of the National Coordinating Body. Capt. Fayyaz Malik and his men were on hand with their hovercrafts to facilitate the plantation activity.

In Media Debriefing session Mr. Rafi-ul-Haq and Fauzia Malik, Executive Director of HRDN paid a high gratitude to MFF and the Sindh Forest department for providing awareness about the mangroves to its members, and proposed that this plantation be made an annual activity. This would be supplemented by the earlier announced declaration of extending the awareness to 1 million people within a year.

GREEN JOBS

Green jobs are define as, “Direct employment which reduces their environmental impact and ultimately brings it down to levels that is sustainable”. These green jobs reduce the consumption of energy and raw materials, avoid greenhouse gas emissions, protect and restore ecosystems & biodiversity and minimize waste & pollution.

ILO AND GREEN JOBS:

Climate change and the excessive use of scarce resources are prompting urgent calls for a shift towards more sustainable development and greener economies. The promotion of green jobs is central to this transition. For the ILO, the notion of green jobs summarizes the transformation of economies, enterprises, workplaces and labour markets into a sustainable, low-carbon economy providing decent work. But much needed innovative strategies to promote green jobs can only succeed with the full involvement and participation of workers and enterprises.

GREEN JOBS ARE DECENT JOBS THAT:

- Reduce consumption of energy and raw materials
- Limit greenhouse gas emissions
- Minimize waste and pollution
- Protect and restore ecosystems

ILO'S APPROACH

- Adequate labour market policies;
- Multi-fact skills programs;
- Instruments and tools for a just transition in affected sectors;
- Social tools for climate adaptation programs;
- Involvement of key partners (ILO constituents).

GREEN JOBS AND LABOUR

Professor Hoosen Rasool, the Managing Director, Management College of Southern Africa (MANCOSA) gave a comprehensive presentation on “Green Jobs and the Labour” on 14th Annual

Trainers Retreat of HRDN members in Cape Town, South Africa.

He started his session with a motivating presentation based on a knowledgeable content and interactive images which not only represented Impact of climate change on labour markets under the wide umbrella of Green jobs but also highlighted the reasons that cause Structural Shifts in Labour Markets as well;

- Dramatic changes in structure and functioning of labour markets
- Labour demand for high skills intensities
- Sectoral shifts in employment patterns
- Occupational growth and declines
- Green products and services
- Well-trained and environmentally aware workforce
- Human Migration
- New green job creation
- Some countries gain significantly, others incur substantial losses

Mr. Rasool further elaborated about the changes in occupational patterns & skills structures needed in order to promote green Jobs. He emphasised that Public sector agencies are responsible for establishing environmental policy and they should have a significant carbon footprint and environmentally skilled employees. For implementation of all these changes training is needed in the following areas:

- Redefine job profiles
- New skills sets
- Curriculum renewal
- Green Programmes
- Highly skilled workforce
- Career guidance services
- Understanding of regulations
- Retraining in declining sectors

GREEN JOBS AND DECENT WORK

Mr. Saadullah Ayaz, Coordinator Climate Change at IUCN gave presentation on “Green Jobs and Decent Work” in a public forum held by HRDN on “climate change concerns and Pakistan” on Friday, June 08, 2012.

Mr. Saddullah Ayaz started his lecture with explanation and interpretation of Climate Change phenomenon that is “Significant and lasting change in statistical distribution of weather patterns over a period ranging from decades to millions of years.” According to the report along with the natural sources anthropogenic activities are the highest contributor to the disaster being caused to the environment in the form of climate change and disruption. These gases are triggering a large percentage of global warming. Human life activities starting from domestic to collective level are day by day deteriorating the natural environment.

Mr. Saadullah Ayaz further elaborated the wide range of impact of climate change i.e.

- **Reduction in water reservoirs**
- **Weather pattern:** longer summer, shorter winters, early springs
- **Environmental deterioration:** desertification, deforestation, species extinction
- **Economic activities:** low production level, agriculture, forestry

- Health and tourism sector
- **Disturbing ecosystem:** land and aquatic

The researched based study depicts some options that can be opted in order to minimize future impact resulting in climate change:

- **Mitigation**
- Energy should be efficiently utilized by: Construction of urban building with proper planning, usage of transportation (prefer public instead of private), technological measures.
- Alternative sources of energy: Solar, hydal and Wind.
- Ensure reforestation and avoid deforestation.
- Adaptation
- Water: storage of flood water on individual as well as collective level.
- Agriculture: adjustment of planting dates, crops variety and relocation, improve land management.
- Human health: emergency medical services, improve climate sensitivity, heat-health active plans.

Upcoming Events at HRDN:

INTERNATIONAL HUMAN RESOURCE DEVELOPMENT CONGRESS 2012 ON “CLIMATE CHANGE ADAPTABILITY”

Considering the adverse effects of climate change, **Human Resource Development Network** in collaboration with Ministry of Climate Change, Government of Pakistan is organizing the “**4th International HRD Congress**” on the theme of “**Climate Change Adaptability**”. This is in view of the theme of the year 2012 for HRDN is Climate Change Adaptability, where a number of events were organized throughout the year. The Congress aims at exploring:



- The challenges of climate change governance, examining in particular the role of the government in strengthening institutions, policies, action plans and measures to promote mitigation and adaptation to human induced climate change

This International Congress will bring together climate change experts, eminent scholars, practitioners, business and civil society leaders, policymakers, senior government officials and representatives of donor agencies from Pakistan and abroad in particular from developing countries, involving private and public sector institutions, environmental NGO's, academia and international agencies. It also will have national and international scholars as speakers, panelists and discussants. It will be two days event with thematic focus on governance, gender, mitigation, response and adaptability, vulnerability and poverty, human resource development. An expo will also be arranged to provide a platform for the stakeholders to showcase their successful initiatives.



THEMATIC FORUM ON “INCONVENIENT TRUTH ”

HRDN will arrange a Thematic Forum on “Inconvenient Truth” which will be presented by Mr. Asif Iqbal. The session will include an interesting presentation on climate change which was initiated by Al-Gore. The global effects of climate change, challenges, and mitigations will also be the part of discussion and presentation.

INCONVENIENT TRUTH

An Inconvenient Truth is a documentary film directed about former United States Vice President Al Gore's campaign to educate citizens about global warming. This documentary earned \$49 million at the box office worldwide, becoming one of the highest grossing documentary films to date in the United States. It intersperses Gore's exploration of data and predictions regarding climate change and its potential for disaster with his own life story.

ALL MEMBERS MEETING (AMM)

13th All Members Meeting is to be held on November 11, 2012 in Islamabad. It is a General Body Meeting to update members about new developments at HRDN during the year; share programmatic and financial progress of the Network; members' interaction; linkages development; get Members' input on a range of programmatic and management aspects of HRDN.

NEWS TO KNOW, IUCN MEMBERSHIP

HRDN is now a member of HRDN and is committed to the cause of conservation and awareness raising on climate change.

IUCN's mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. To ensure sustainable development in Pakistan, IUCN Pakistan aims at:

- Integration of environment and development
- Facilitation for the creation of a supportive policy and legal framework
- Support to institutional and human resource development for environment; and increasing popular support for the environment.

IUCN Pakistan maintains core capacity and services in the form of thematic programmes as part of the Country Office. Thematic expertise residing in IUCN Pakistan include climate change, coastal ecosystem, natural resource management, geographical information system, environment policy and governance, education for sustainable development, communication and outreach (ECO), and business and biodiversity.

IUCN PAKISTAN'S KEY PROJECTS INCLUDE THE FOLLOWING:

- Balochistan Partnerships for Sustainable Development (BPSD)
- Establishment of Biodiversity Park in Area Development Scheme, Tehsil Murree
- Mainstreaming Biodiversity Conservation into the Juniper Forest Ecosystem Production Landscape
- National Impact Assessment Programme (NIAP)
- Punjab Sustainable Development Strategy (PSDS)
- Sindh Coastal Community Development Project (SCCDP)

POLIO CAMPAIGN

HRDN is joined polio campaign to bring better awareness and access of Polio Vaccination to all the children till five years age. This effort is to eradicate the crippling disease of polio from Pakistan and from the world.

Do you know?

Polio is a crippling disease

Only **3** countries of the world including **Pakistan, Afghanistan and Nigeria still have Polio**, where rest of the world has eradicated it.

Please help your own child....

- As of 19th September 2012, 35 new cases are identified and notified since January 2012 and unfortunately increasing day by day, that is alarming.
- Until a single child is infected with Polio Virus, all the Children of the world are at risk.
- Polio is incurable, prevention through vaccination is the only way to save children from this disease.
- Vaccinate all your children upto five years of age with two drops of polio, every time its offered.



Supporting this noble cause to eradicate polio from Pakistan

"For more Information PEI website link"
<http://www.endpolio.com.pk>
<http://www.polioeradication.org/Home.aspx>



INFORMATIVE LINKS ON CLIMATE CHANGE

Lost There Felt Here:

http://www.conservation.org/act/get_involved/protect_forests/Pages/deforestation.aspx?gclid=CJaAwqOZm7ICFcEc6wodm0kAzw

10 facts on Climate Change and Health:

http://www.who.int/features/factfiles/climate_change/en/index.html

Climate and Development:

<http://www.one.org/c/international/issue/947/?gclid=CLjIhtedm7ICFcp56wodDUEAOQ>

Global Warming Fast Facts:

http://news.nationalgeographic.com/news/2004/12/1206_041206_global_warming.html

Seven interesting Facts about Climate Change:

<http://factspage.blogspot.com/2010/01/7-interesting-facts-about-climate.html>

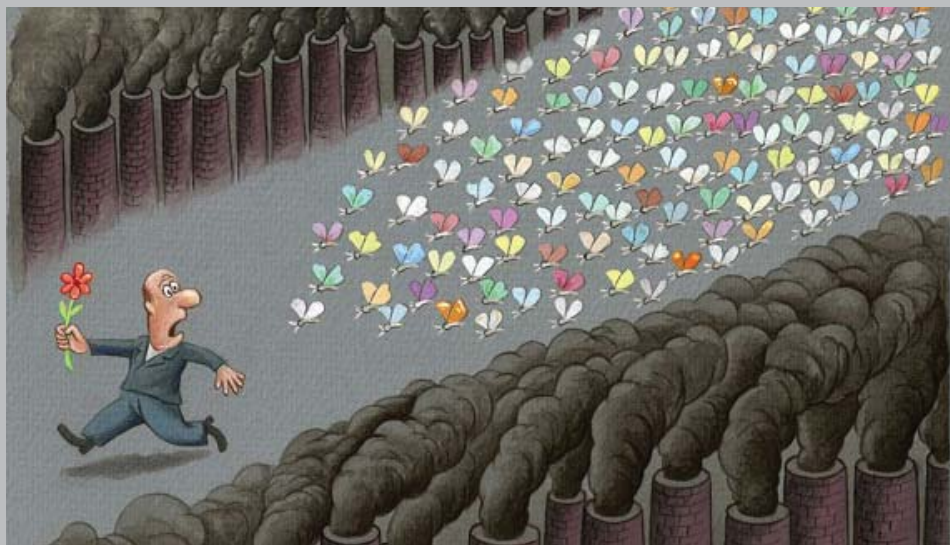
Global Warming Exposed:

<http://www.webring.org/hub/globalwarmingexp?w=1024;rh=http%3A%2F%2Fwww%2Eclimatchangefacts%2Einfo%2F;rd=1>

Climate Change:

http://www.conservation.org/learn/climate/Pages/climate_overview.aspx?gclid=CNLofWgm7ICFQV76wodkBwA_Q

CLIMATOONICS



**ARE
YOU
SERIOUSLY
FUNNY?**





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