Climate change and the poor

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CLIMATE change caused by global warming is a hard and bitter reality now. World leaders and activists have risen to the occasion lately; intercontinental level discussions after discussions have been held over the recent years to agree on ways and means to mitigate effect of and adapt to this unwelcome change. But any adequately effective and agreed measure is yet to be on card. The latest Copenhagen conference has also unfortunately experienced more discord than consensus. Meanwhile the scourge is assuming further gravity for the vulnerable.

Carl Pope, executive director of the Sierra Club, one of America's most influential environmental organisations, writes on projection: "The climate models ran and ran, and ran again. Big chunks of Antarctica plunged spectacularly into the sea, while glaciers in the Himalayas quietly withered away, and Kilimanjaro got browner and browner. Finally the scientists concluded their long debate: not only could human activity disrupt and destroy the stability of the world's climate, it was measurably doing so. The rest of us tried not to listen. But we need to" (India Today, Dec 14, 2009).

Yes, we need to, not only listen but act too, now. Because it is already late; we must not allow it to be too late.

Well, global warming is a natural process, but so slow in progression that it never have been anyway significant until late last century when people started to feel the heat to their utter concern. They traced back to find the cause in their own doing: the process has been more human induced than natural following the industrial revolution. And since then there has been no let up in the excessive emission of CFC and other greenhouse gases in the atmosphere. With the increase in population coupled with unabated consumerism this heating up process has only gained momentum for worse over the recent decades. "Nineteen of the world's 20 warmest years have occurred since 1980".

But for this not all humans are equally responsible, nor all are equally capable of mitigating the scourge themselves. But when this malady is global, the measures to face it also has to be global -- logically the most emitters helping the least emitters in that.

Although the COP15 Copenhagen has been termed by many as failure, there has been some hopeful outcome to note. The Kyoto Protocol, an international initiative to deal with the problem, was adopted in 1997 but the US, the largest greenhouse gas producer, refused to sign it. This time at Copenhagen it has been a US led deal. Under the initiative of US President Barak Obama, China, India, Brazil, South Africa struck it while there has been pledges that rich (industrialised) countries would provide dollar 30 billion over the next three years and dollar 100 billion a year from 2020 to developing countries. The US, however, announced the lowest pledge of contributing dollar 3.6 billion between 2010 and 2012 while Japan would contribute dollar 11 billion and the EU dollar 10.6 billion.

But the deal has no legal binding. There has been an agreement to arrest global temperature rise at 2 degrees Celsius above pre-industrial level by 2050. This implies considerable cut in carbon emission over the next 40 years. But would it be realised under a non-binding accord, many doubt. So reasonably many are not satisfied with the COP15 outcome. However, there are also reasons for Bangladesh to feel a bit otherwise. It has been recognised as one of a few countries most vulnerable to global warming and climate change. At least some fund must be available for it to adopt coping measures. Bangladesh consequently finds some solace in the face of mounting miseries due to climate change ravages.

Poor vulnerable countries, including Bangladesh, have already started to bear the brunt of climate change impact. Bangladesh is more frequently visited by devastating cyclones now than ever before and is set to lose 15 percent of its landmass to the rising sea turning 10 percent of its population climate refugees. Damage to Bangladesh's coastal infrastructure is apprehended to amount upto 12 percent of its GDP by 2010, not to speak of how frightening it would be by 2050. According to one estimate, 65 percent of greater Khulna, 99 percent of Barisal, 100 percent of Patuakhali, 44 percent of Noakhali and 12 percent of Faridpur districts will be inundated.

As a result 13.74 percent of cropped area and about 401,600 hectares of mangrove forest with its unique wildlife will be lost. Crop loss will be in millions of tons. The salinity intrusion upward will entail further production loss in agriculture. The total losses of assets and production in small and cottage industries sector are estimated to be Tk 1078 million and Tk 981.553 billion, respectively, not to speak of other industrial and trading losses.

These losses will lead to increased poverty and decreased food security, increased unemployment and decreased accommodation capacity, pushing society to a jeopardy. Climate change will increase incidence of diseases with addition of new affliction and vectors. Vulnerable poor countries consequently having less withstanding capacity will simply suffer more. They need adequate support -- global support to counter their respective local climate change afflictions.

Well, the problems would vary from region to region, place to place, and local efforts are a must to overcome these. Local experts and administration understand their local problems better. Whatever the source of fund local undertakers are required to utilise that. At the Conference also, while raising demand for support to mitigate climate change impacts by LDCs, there has been suggestions by many for local initiative towards ensuring effective encounter.

Like elsewhere Bangladesh also has a local government system which may take the initiative of implementing or permit other appropriate undertakers to implement special climate change mitigation and adaptation programmes. Such programmes, in fact, shall not be much different from other development projects. So there is understandably not much difficulty in assuming and achieving them. But there is little time left for contemplation. Climate is changing rapidly than thought and its impact is already being felt. This will mount and profoundly affect us and subsequent generations. The only way out is our own challenge to slow the process, to lessen our vulnerability and adapt to changed conditions.

If we are serious and sincere in our pledge to reduce green house gas emission, it would not be very difficult to bring down global mean temperature below 2 degree Celsius above pre-industrial period by the target period or even before.

Locally we can go for greening (afforestation) projects wherever possible. But, sadly enough of late media is very frequently coming up with reports of denudation of plantations by "miscreants having links with people that matter". This speaks of no sincerity, no seriousness attached to speech. There must be very stringent law against deforestation and exemplary action against perpetrators. And we can go for clean energy -- wind power, solar power -- as much possible. However, windmills in coastal belt run the risk of being affected by cyclones and solar panels will not work during the monsoon. But then we can embark upon some solution measures, ways must be found for survival's sake.

As a least developed country we need to develop; the world want us to develop. Thus we cannot curtail our modest industrialisation process but can cut emission, whatever small it is. In that the developed world has to help us with improved, efficient technologies. In our case at the moment the brick kilns appear to be the most emitters. They should be made to refrain from burning fossil fuels and adapt to efficient energy use step by step.

In agriculture we have to adapt to further intensive cropping patterns, for a substantial portion of cropland will be lost under the climate impact, and we have to undergo a massive rehabilitation programme as well. We have also to undertake an extensive campaign to aware people about the climate change -- how and why it happens, and enlighten them of the necessity for mitigation and adaptation measures. This is also necessary for involving the people in the process. Because, all inclusive the task is simply huge; not feasible for administration machinery or a few agencies to shoulder it alone.

Besides, or outside of, government, NGOs have a proven record of undertaking and accomplishing large public interest projects involving individuals as well as communities. The sphere includes healthcare, education, water and sanitation, afforestation, farming, microcredit and poverty alleviation. They can be effectively engaged in alleviating climate change suffering of the people as well utilising their experience and capability. Small industries also can come under some NGOs' SME programmes for employment and rehabilitation of the displaced.

Poor countries' cry for help is by all counts justified. The poor obviously suffer most during any calamity not to speak of the climate change impact -- the calamity of scale. The NGOs have experience of working with and for the poor in some cases more than government agencies themselves. They have experience of involving their network during emergency situations, like flood and cyclone, in relief and rehabilitation service.

Government can chalk out programmes for the poor and vulnerable according to evolving situation or ask NGOs to submit theirs and get approved. Then it can embark upon that at local government level or whatever with NGOs, or ask them to run theirs under its supervision or whatever process plausible. The objective is to serve most the most vulnerable -- the poor -- to help them mitigate and adapt to the climate change situation. This has to be accomplished in whatever way and with whatever means possible.

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Devastated by cyclone, waiting for succour.

Coping with climate impact on agriculture and food security

The predicted sea-level rise will threaten valuable coastal agricultural land, particularly in low-lying areas. Climate unpredictability will make planning of farm operations more difficult. The effects of these impacts will threaten food security of the most vulnerable people of the country.

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AT the United Nations climate change conference last moth , an index was prepared for judging the risks of climate change countries. According to the index, Bangladesh will be most severely affected by climate change .Myanmar, Honduras, Vietnam, Nicaragua, Haiti, are in subsequent next positions.

To understand how climate change will impact Bangladesh in future, three considerations are critical -- location, population, economy.

Firstly, the location of Bangladesh is in a deltaic plane, where the sea is funnel shaped, making it susceptible to sea surge and cyclones. Secondly, the country is one of the most densely populated in the world. Besides, the country is also very poor and majority of people live below subsistence level, making them already vulnerable. Thirdly and the most profoundly damaging impact of climate change in Bangladesh will be from sea level rise with salinity intrusion, plus there would be temperature increase and droughts. All of these will drastically affect crop productivity and food security. With sea level rise there will be crisis of fresh water in the coastal zones.

Most of Bangladesh is less than 10 meters above sea level. Sea levels crept up about 20 centimeters during the twentieth century and are predicted to go up between 18 and 59 centimeters over this century. Eleven percent of Bangladesh would be submerged, putting the lives of 55 million people in danger.

Climate change will affect many sectors including human health, water resources, agriculture and food security, ecosystems and biodiversity. As tropical temperature zones expand and continue for longer time, incidents of infectious diseases like malaria, dengue will increase. Hotter summers will lead to more cases of heat stroke and deaths.

But the most serious impact will be on agriculture and related food security. Agriculture is the major economic driver in Bangladesh, accounting for nearly 20 percent of the GDP and 65 percent of the labour force. Crop yields are expected to drop significantly. Crop production will decrease by 30% in 2100. Production of rice and wheat will reduce by 8.8%, and 32% within 2050, creating a very high risk of famine. The impacts of higher temperatures, more variable precipitation, extreme weather events, and severe draughts can turn part of the land into desert while the rising sea level will have already decreased the area of arable land and affected crop production.

The predicted sea-level rise will threaten valuable coastal agricultural land, particularly in low-lying areas. Climate unpredictability will make planning of farm operations more difficult. The effects of these impacts will threaten food security of the most vulnerable people of the country. Its agriculture sector is already under stress from lack of productivity and unabated population growth. Any further attempt to increase productivity will add pressure to available land and water resources. Saline water intrusion will damage about 830,000 ha cultivable land. Disappearing seasons, (winter season is shrinking, autumn and dewy seasons are vanishing) will also affect the cropping pattern. Drought during the dry season and floods due to predicted increased rainfall during monsoon will affect production. Fisheries will also be affected; one of the major foreign currency earners, shrimp industry will suffer from rising temperature. Carps culture may reduce due to saline water intrusion in the ponds and open water bodies. Without long, sustained winters wheat production will drastically decrease.

"The impact of climate change on agriculture and food security is undeniable and will most certainly worsen if governments and donors fail to take appropriate steps right now," Ghulam Mohammad Panaullah, former research director of the Bangladesh Rice Research Institute (BRRI), warned.

Some preemptive measures can be taken to lessen the effects of climate change on agriculture.

Already, Bangladesh has invested 10 million taka on its own, to build cyclone shelters and create a storm early-warning system. Earlier this year, it allocated another $50 million to agriculture and health budgets to help "climate-proof" certain development sectors. The nation's agricultural research centers are devising salinity-resistant and climate resilient varieties of crops. Bangladesh urgently needs support in developing a climate-resilient agriculture if its people are to survive and prosper in the long term.

The first thing to do to adapt agriculture to changing climate is going for climate change-resilient agriculture. Salinity-resistant strains of rice are being devised at BRRI. Also salinity resistant fishes can be cultivated. Developing crop varieties resistant to flooding, drought and salinity, and better surveillance systems for new and existing disease risks is of utmost importance.

Secondly, use of new techniques can negate the effect of climate change like floating beds for cultivating vegetables, maintaining the soil's moisture by covering the seed beds (and the manure around plants) with straw and leaves to prevent excessive evaporation and erosion, and increasing the amount of organic material in the soil. Cage and pen culture of fish in low lying areas can be introduced.

Another way is modifying cropping patterns altogether, by including crops which grow better in hot weather. Warmer temperatures have already shifted the growing season in many parts of the globe including Bangladesh. Wheat needs sustained winter, rising temperature will decrease the production drastically; on the other hand maize grows better with rising temperature and needs less time also. Jute can survive after being water logged for 15 to 20 days, enough to pass seasonal flash floods in the char areas, also it can tolerate higher temperature. DAE can promote cropping pattern that suits this type of changed weather.

Fourthly, hybrid seeds can be introduced to increase production. Some companies are planning to introduce maize/corn varieties which will increase production by at least 20%.

The farmers have to be trained and their capacity increased to implement the plans at field level. This has to be done by the government, with help of NGOs operating in this sector.

In 2005 the government prepared a National Action Plan on Adaptation (NAPA) identifying 15 projects that needed to be undertaken, but "unfortunately three years have already passed and we have only just started implementing the first project," one involved GoB official said.

Still there is scope, in the eyes of the experts: Bangladesh, with its long experience of natural disasters, can cope better with climate change than many other countries.

A report in the Guardian (UK) said, "People of one of the poorest and most vulnerable and yet resilient and innovative countries transform it from being the world's most famously 'vulnerable' country to being recognized as perhaps its most 'adaptive' country."

World's leading climate scientists agree that the nation desperately needs money from the West to adapt to problems, but they also point out that the country's history with catastrophe has in some ways given Bangladesh a head start in knowing how to cope with climate change.

Indeed, in 2007 -- some 30 years after former Secretary of State Henry Kissinger declared Bangladesh "an international basket case" -- the World Bank predicted that it could join the ranks of middle-income countries within two decades.

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PADDY (GUMAI BIL)

Better harvest has to be ensured.

Why not promote environment-friendly concrete?

The production process is environment-friendly, free from cement and dust dispersion in atmosphere as well as it does not create a messy situation on the ground. Being located at a distance, it does not create a situation of sound pollution. Uncontrolled and hazardous storage of basic materials at construction sites causing traffic congestion and untidiness is avoided, keeping the environment congenial.

S K LALA

SINCE its introduction back in 1845, concrete has become the most important item among construction materials accounting for 20% to 40% of total construction cost of a project. Be it for a residential building or for structures like bridges, flyovers, road pavements that are needed for the development of any country, concrete is an essential item that needs careful attention, more so for a country like Bangladesh.

Concrete has all along been a mixture of stone or brick chips, sand, cement and water, which holds good still to this day. But qualitatively there has been a revolution. While in earlier days concrete was of 1500 to 2000 psi strength in recent times it is up to 15000 psi (in our country up to 7000 psi). This is a remarkable achievement indeed.

The ingredients being primarily the same and consistent throughout, what is the trick that has made this revolution possible? It is knowledge and application of knowledge that has made it possible. It is high time that we accept concrete technology, a complex subject, to be studied with due seriousness and in a methodical manner.

At present in our engineering universities and technical institutes, concrete technology is a subject that constitutes a miniscule portion of the entire syllabus in civil engineering. With continuous growth of the use of concrete, application of lessons on the subject is rapidly diminishing. The process must be reversed quickly and effectively. The people concerned at high places, particularly the universities of engineering and technology, must give it a serious thought and introduce courses on concrete technology at different levels of civil engineering curriculum as a priority issue.

An important aspect of producing quality concrete is the process of mixing the ingredients. In the early days volumetrically proportioned stone/brick chips, sand and cement were dumped on ground, mixed together with a hand shovel, whereafter water was added and a homogeneous paste was prepared. Later on, engine propelled mixer machines got introduced to take over the process of mixing but the same volumetric proportioning of ingredients still persisted.

Gradually in the developed countries, this volumetric mixing was discarded and a system was developed to mix all the ingredients of exact weight as the concrete has been designed, where the amount of water to be mixed was also predesigned and arrangement for achieving the same was incorporated. The concrete produced in this fashion has been termed 'Ready-Mix Concrete' which has now become a common term internationally.

The ready-mixed concrete, instead of mixing at site is produced at a suitable location from where it is transported to where it is needed. Apart from being a technically more sound a process, this has some distinct advantages namely --

- The production process is environment-friendly, free from cement and dust dispersion in atmosphere as well as it does not create a messy situation on the ground.
- Being located at a distance, it does not create a situation of sound pollution.
- Uncontrolled and hazardous storage of basic materials at construction sites causing traffic congestion and untidiness is avoided, keeping the environment congenial.

In all the developed countries, including our neighbourly developing ones like Thailand, Malaysia and Singapore traditional mixing has been banned and all concrete has to be ready mix. Even in India, particularly in its richer western part, the use of ready-mix concrete is as high as 35-50 percent whereas in our country it is still limited to 1-2 percent.

It was in 1991, ready-mix concrete was first introduced in our country by Concord Engineers and Construction Ltd, through establishment of a small plant at Tejgaon. It received no support from government. The situation continued for over 12-15 years, whereafter a couple of other entrepreneurs became aware of its necessity and potential and established batching plants (plans for producing ready-mix concrete) of their own. Still now its availability is limited to city areas of Dhaka and Chittagong only. With a little support from the government, this sector may develop quickly, which is needed for quality construction and environmental reasons.

Apparently ready-mix concrete is slightly more expensive than site mixed concrete as this has to be transported from a central plant to site and transportation has a cost. However this is not the real picture rather a superficial one. There are many elements that have an effect on the cost that are generally not noticed by an unaware user. Cutting wastage on site and labour cost in pouring and placement, saving time, particularly for large volume of concrete, facility of concreting at any time of day or night, not using cement more than actually required (it is ironical that most of our users even many of our engineers carry a misconception that extra cement, more than the design requirement, renders it to be better and finds this extra expenditure to be worthwhile) are just a few areas that remain unnoticed and ready-mix concrete is considered more expensive.

Imposition of VAT on ready-mix concrete, while site mix concrete is not subjected to the same, make it more unattractive to buyers. Such discriminatory move may hamper development and progress and not serve the best interest of the country.

It is now up to the policy and decision making people to take a highly important and necessary bold step of --

- Keeping ready-mix concrete out of VAT imposition say, for a period of 5 (five) years.
- Making it mandatory for all large government projects as well as constructions in big city areas to use ready-mix concrete, on both durability and environmental grounds.

If this is done, expansion of this budding industry will be manifold and once its use reaches a minimum of 25-30 percent of total production and use of concrete in the country, and VAT is imposed at that stage, the amount of VAT will be increased manifold and what is being sacrificed now for a much needed cause will be more than well rewarded, in subsequent years.

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