Effects of global warming

In a warmer world, scientists predict that more people will get sick or die from heat stress, due less to hotter days than to warmer nights (giving the sufferers less relief). Diseases now found in the tropics, transmitted by mosquitoes and other animal hosts, will widen their range as these animal hosts move into regions formerly too cold for them. Today, 45% of the world's people live where a mosquito carrying the parasite that causes malaria might bite them; that percentage may increase to 60% if temperatures rise.

MD. BADSHA MIA

GLOBAL warming means increase in the average temperature of the atmosphere, oceans, and landmasses of the earth. The planet has warmed (and cooled) many times during the 4.65 billion years of its history. At present, earth appears to be facing a rapid warming, which most scientists believe results, at least in part, from human activities.

The chief cause of this warming is thought to be the burning of fossil fuels, such as coal, oil, and natural gas, which releases carbon dioxide and other substances known as greenhouse gases into the atmosphere. As the atmosphere becomes richer in these gases, it becomes a better insulator, retaining more of the heat provided to the planet by the sun.

Scientists use elaborate computer models of temperature, precipitation patterns, and atmosphere circulation to study global warming. Based on these models, they have made several predictions about how global warming will affect weather, sea levels, coastlines, agriculture, wildlife, and human health.

Weather

Some experts predict that an increase in global warming will result in unpredictable weather patterns, including storm surges in which the wind piles up water in low-lying areas. The curved arms of the New Waterway Storm Surge Barrier in the Netherlands protect Rotterdam and other inland cities from flooding during large storms in the North Sea.

Normally, the large, curved arms are retracted to allow ships from the North Sea to travel to ports along the New Waterway. When a dangerous storm is anticipated, the arms are swung out to block off the waterway and prevent large waves from pushing floodwaters inland.

Scientists predict that during global warming, the northern regions of the Northern Hemisphere will heat up more than other areas of the planet, northern and mountain glaciers will shrink, and less ice will float on northern oceans. Regions that now experience light winter snows may receive no snow at all.

In temperate mountains, snowlines will be higher and snow-packs will melt earlier. Growing seasons will be longer in some areas. Winter and nighttime temperatures will tend to rise more than summer and daytime ones.

The warmed world will be generally more humid as a result of more water evaporating from the oceans. Scientists are not sure whether a more humid atmosphere will encourage or discourage further warming. On the one hand, water vapour is a greenhouse gas, and its increased presence should add to the insulating effect. On the other hand, more vapour in the atmosphere will produce more clouds, which reflect sunlight back into space, which should slow the warming process (see Water Cycle).

Greater humidity will increase rainfall, on average, about 1% for each Fahrenheit degree of warming. (Rainfall over the continents has already increased by about 1% in the last 100 years.) Storms are expected to be more frequent and more intense. However, water will also evaporate more rapidly from the soil, causing it to dry out faster between rains.

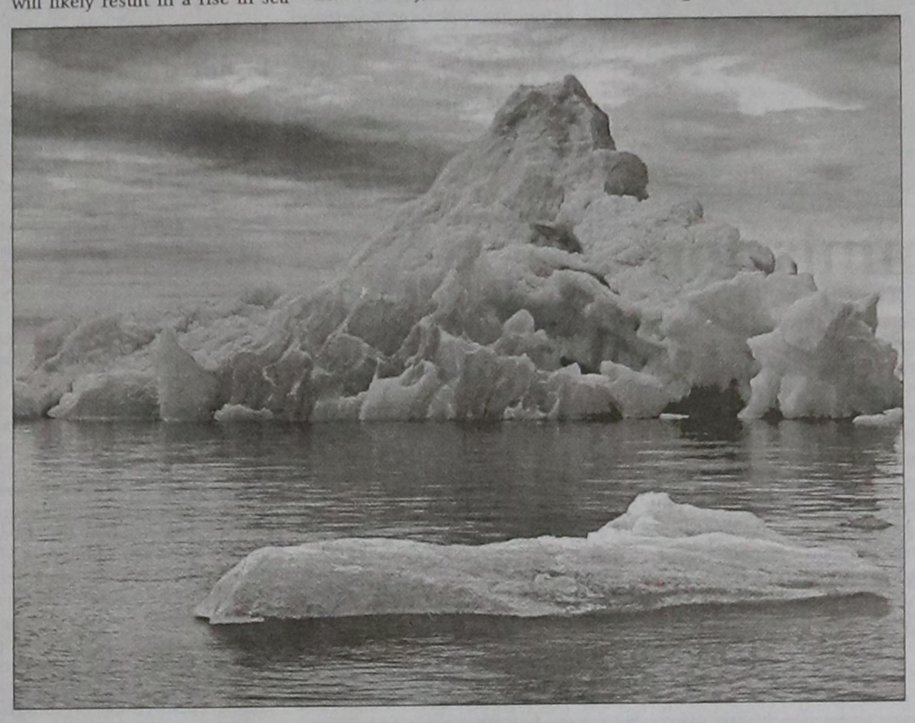
Some regions might actually become drier than before. Winds will blow harder and perhaps in different patterns. Hurricanes, which gain their force from the evaporation of water, are likely to be more severe. Against the background of warming, some very cold periods will still occur. Weather patterns are expected to be less predictable and more extreme.

Sea levels

An increase in global warming will likely result in a rise in sea levels, which could threaten many coastal areas around the world. Experts predict that parts of Bangladesh may become completely submerged if sea levels rise.

As the atmosphere warms, the surface layer of the ocean warms as well, expanding in volume and thus raising sea level. Warming will also melt much of the glacier ice, especially around Greenland, further swelling the sea. Sea levels worldwide rose 10 to 25 cm (4 to 10 in) during the 20th century, and IPCC scientists predict a further rise of 9 to 88 cm (4 to 35 in) in the 21st century.

Sea-level changes will complicate life in many coastal regions. A 100-cm (40-in) rise could submerge 6% of the Netherlands, 17.5% of Bangladesh, and most or all of many islands. Erosion of cliffs, beaches, and dunes will increase. Storm surges, in which winds locally pile up water and raise the sea, will become more frequent and damaging. As the sea invades the mouths of rivers, flooding from runoff will also increase upstream.



Wealthier countries will spend huge amounts of money to protect their shorelines, while poor countries may simply evacuate low-lying coastal regions.

Even a modest rise in sea level will greatly change coastal ecosystems. A 50-cm (20-in) rise will submerge about half of the present coastal wetlands of the United States. New marshes will form in many places, but not where urban areas and developed landscapes block the way. This sea-level rise will cover much of the Florida Everglades.

Agriculture

A warmed globe will probably produce as much food as before, but not necessarily in the same places. Southern Canada, for example, may benefit from more rainfall and a longer growing season. At the same time, the semiarid tropical farmlands in some parts of Africa may become further impoverished.

Desert farm regions that bring in irrigation water from distant mountains may suffer if the winter snow-pack, which functions as a natural reservoir, melts before the peak growing months. Crops and woodlands may also be afflicted with more insects and plant diseases.

Animals and plants

Animals and plants will find it difficult to escape from or adjust to the effects of warming because humans occupy so much land. Under global warming, animals will tend to migrate toward the poles and up mountainsides toward higher elevations, and plants will shift their ranges, seeking new areas as old habitats grow too warm.

In many places, however, human development will prevent this shift. Species that find cities or farmlands blocking their way north or south may die out. Some types of forests, unable to propagate toward the poles fast enough, may disappear.

Human health

In a warmer world, scientists predict that more people will get sick or die from heat stress, due less to hotter days than to warmer nights (giving the sufferers less relief). Diseases now found in the tropics, transmitted by mosquitoes and other animal hosts, will widen their range as these animal hosts move into regions formerly too cold for them.

Today, 45% of the world's people live where a mosquito carrying the parasite that causes malaria might bite them; that percentage may increase to 60% if temperatures rise. Other tropical diseases may spread similarly, including dengue fever, yellow fever, and encephalitis. Scientists also predict rising incidence of allergies and respiratory diseases as warmer air grows more charged with pollutants, mold spores, and pollens.

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Asian states feel rice pinch

Spiralling rice prices have left the people of Bangladesh facing their worst food shortages since the major famine of 1974. Over the last year, prices have nearly doubled to about Tk35 (50 cents), while there has been no corresponding increase in wages. Hundreds of poor families are now surviving on one meal a day, and spending 70-80% of their budget on food. The problem is most acute in urban areas, and aid agencies say that they are very concerned about infant malnourishment.

TAREQUL ISLAM MUNNA

ASIAN countries have been struggling to cope as the cost of rice has reached record levels.

The price of the staple crop has risen by as much as 70% during the last year, according to the UN Food and Agriculture Organisation (FAO), with increases accelerating in recent weeks. Shortages have begun to hit some importing countries.

Factors contributing to the price rise include:

- Poor harvests resulting from extreme weather.
- A rise in demand in some rice-importing countries, where populations and incomes are growing.
- The expectation of further price increases -- resulting in hoarding.
- Low stockpiles and a long-term lack of agricultural investment.

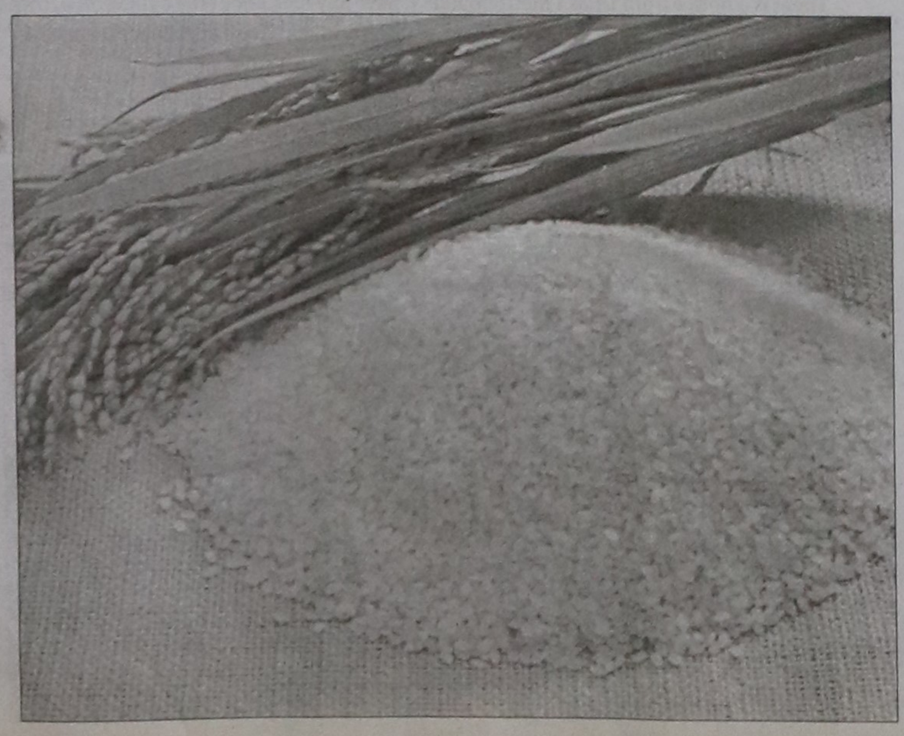
The spike is also part of a general surge in food costs worldwide, so the option of switching to cheaper foods is often not available. Producers, including India, China and Vietnam, have restricted exports as they try to protect their stocks and limit inflation. Importers such as Bangladesh, the Philippines, and Afghanistan have been hit hard. Prices are expected to remain volatile, though output is likely to grow later this year as farmers in Thailand and Vietnam plant additional crops.

India

India is the second largest rice grower in the world after China. Much of this rice, the staple food of 65% of the country's one billion plus people, is consumed domestically. But prices have been soaring -- a shopkeeper in Delhi told the BBC that the cost of one variety had increased from Rs12 (29 cents) per kilogram to Rs16 (39 cents) in the last two months. Rice prices in the capital rose by 20% last year.

The government has announced a total ban on exports of non-basmati rice in a bit to curb rising food prices, which has helped push inflation to a 13-month high. The price for basmati rice, meanwhile, has been raised to $1,200 per tonne to discourage exports. Officials say that, as yet, there is no crisis -- India has more than enough reserves to feed its population. They also say that India will honour its commitments to export rice to neighbouring Bangladesh.

But the International Rice Research Institute says that the sustainability of rice farming in India and elsewhere is threatened by overuse of fertilisers and poor soil health. Stocks have come down over the last three years as agricultural growth has failed to match the rest of the economy. And because of the low purchasing power of India's poor, even a small increase in prices can cause a sharp fall in real incomes.



Bangladesh

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The problem is most acute in urban areas, and aid agencies say that they are very concerned about infant malnourishment. Local factors have contributed to the price rise. Bangladesh had been hit twice by severe flooding last year, and by a devastating cyclone in November. The government is giving rice to 2.6 million people, and supplying some families at discounted prices.

It has had to import four million tonnes of rice from India over the last six months -- more than double the usual amount. But the government's critics say that it has made matters worse with an anti-corruption drive that has led to the closure of many unofficial rice supply outlets.

Philippines

Once self-sufficient in rice, the Philippines is listed by the US Department of Agriculture as the world's top importer of milled rice for 2007, ahead of Nigeria, Indonesia and Bangladesh. Over the past 20 years or so, the country lost nearly half of its irrigated land to rapid urban development.

Domestic demand has risen as the population has grown, pushing up prices. With rice stocks low, the government has been negotiating with neighbouring countries to secure imports, signing a deal with Vietnam and working for another one with Thailand.

Fears of public unrest have been growing. Communist guerrillas recently burnt a rice trader's vehicles in the central island of Panay. President Gloria Arroyo has asked authorities to crack down on hoarders. Officials have said they could be charged with economic sabotage --- a crime that carries a life sentence. There have also been efforts to reduce consumption. Some of the country's fast-food chains are offering half portions of rice at the government's request. The government has also asked the public to save leftover rice.

Troops have been called in to protect deliveries of rice to poor areas, while farmers have reportedly begun guarding their crops. Some government critics say that it has not done enough, and members of the influential May First Labour Movement have been holding small-scale demonstrations in various parts of the country. But others say that Ms. Arroyo has overreacted, creating unnecessary panic.

Thailand

Thailand has long been the world's largest exporter of rice, well ahead of Vietnam and the US. It has not yet placed any restrictions on exports, and has denied reports that it is considering taking this step. However, some rice millers and traders who deal on forward contracts have been

suffering, after being caught out by price fluctuations. Exporters have even complained that they would prefer to have stable prices than high prices.

Some millers have hoarded rice in an attempt to earn higher profits later on, pushing prices higher still as they restrict supply. The government has released some of its 2.1 million tonnes of stockpiled rice in an attempt to contain inflation. It has also said that it will enforce a rule that exporters set aside at least 500 tonnes of rice to prevent shortages.

Rice prices increased by more than 50% last year and have doubled since the beginning of 2008. While in some countries rice consumption has risen with prosperity, Thais have been eating a greater variety of foods and less rice as they have become wealthier.

China

Chinese consumers have been have been eating less rice as their income has risen, according to the FAO. Instead, they have been switching to meat and dairy products. But the government, highly conscious of social or political tensions caused by food inflation, has moved to protect consumers by restricting exports.

Chinese Prime Minister Wen Jiabao said this week that China had an "abundant" supply of rice to feed its population of more than 1.3 billion. China had stockpiled about 40-50 million tonnes of rice, he said. Though China is not one of the top rice exporters, export restrictions can have a big impact on importers, including North Korea, which buys rice from China at very low prices as it tries to cope with frequent food shortages. Though short-term supplies are secured, there are concerns that urbanisation and industrial development are putting pressure on

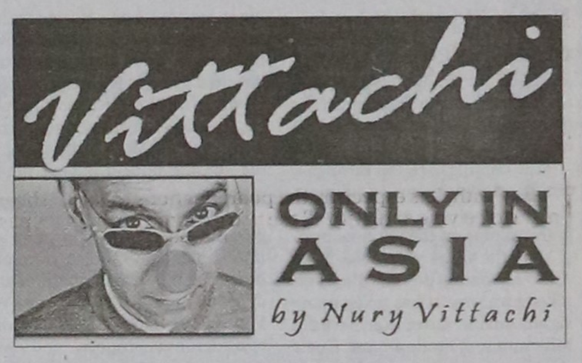
Japan

Rice is thought to have been produced for more than 2,500 years in Japan, where it was once seen as so important that it was worshipped as a god. Instead of importing rice, Japan heavily subsidises its rice farmers, paying them as much as four times the market price and restricting imports.

This policy is defended by a farming community with considerable political weight, and many Japanese agree that home-grown rice tastes best. Food security is seen as politically important, and the country keeps a large stockpile of rice -- even though it is probably wealthy enough to buy on the international market even if prices continue to rise.

Its scientists are already looking for varieties that will be resistant to higher temperatures caused by climate change. Japan trades relatively small quantities and has little impact on the international market.

Tarequl Islam Munna is taking positive environmental action around the world to conserve nature and ecological balance on behalf of World Wildlife Fund (WWF).



The Malaysian ant teaches us all how to go out with a bang

THERE are people who think the total destruction of human civilisation through global warming might actually be a bad thing.

But there you go. People can be weird.

Yet everyone is entitled to his or her own opinion, even if they are wrong.

But I was intrigued to hear one theory about human self-destruction that leads us to one of the world's most curious creatures: the Malaysian ant, known to scientists as camponotus saundersi.

Most creatures have some sort of self-defense mechanism. Attack a snake and it will spit poison at you; scare a squid and it will squirt ink at you; criticise certain Singaporeans and they will shoot out a stream of lawyers at you.

If you attack this Malaysian ant, it explodes. This is how it works. Big bug attacks ant. Ant runs away. Bug pursues ant. Ant stops and turns. Bug approaches, taking out knife, fork and ketchup sachet. Ant explodes, looking smug and killing larger bug.

As defense techniques go, the Malaysian ant's system works well. There's only one drawback, which smart readers may already have spotted: the triumphant winner ends up spread in tiny pieces over the forest floor.

There are several examples of exploding animals in nature -- such as whales, cows and King William I of England -- but these all die before exploding. It is only the Malaysian ant which is one moment swaggering along the road thinking, "I am the master of the universe and I can prove it any time I want to" and is the next moment 2,000 bits of organic dust, each of which is thinking: "Oh bother. Bang goes that nice evening I was planning hanging out with the queen."

Scientists think the Malaysian ant is making an unconscious decision to sacrifice its life for the colony. And some believe that human beings are making the same unconscious decision to wipe themselves off the Earth for the sake of the planet.

If humanity does destroy itself, the globe will almost definitely be taken over by ants, which already make up some 20 percent of the world's biomass.

One just hopes they won't all be Malaysian ants. Can you imagine what would happen if an alien lands and looks at them the wrong way? They could get very upset and -- bang --there goes the planet.

Incidentally, there was plague of exploding toads in Germany recently, a reader tells me. Scientists discovered that a generation of toads had got into the habit of misjudging the amount of air they should take in to puff themselves up, and ended up accidentally blowing themselves to pieces. This is perhaps the ultimate example of how a small mistake can spoil your whole day.

The discovery that creatures can puff themselves up so much that they explode has interesting implications. I hope it applies to humans, too. Think about the leader of North Korea, whose birth allegedly caused the stars to bow down.

Kim Jong Il: "As Supreme Leader of the richest, most developed, most advanced civilisation in the universe, I would just like to say--"

(A loud explosion shakes the hall.)

First audience member: "Where'd he go?"

Second audience member: "I don't know. Why is there steaming blubber draped on your shoulder?"

First audience member: "No idea. I don't remember putting it on this morning."

Readers may explode with laughter, or boredom, at our columnists' website: www.vittachi.com.