

# Vulnerable as ever to Too much hot air over global warming climate change woes

**M**OHAMMAD Reazuddin, Director of the Department of Environment, has been actively involved in the entire process of global climate consultation since Rio and has shaped the study of the impact of climate change on Bangladesh. Recently, in an interview, he talked at length about possible impact of climate change on Bangladesh. Excerpt:

**Q: Intense debate is going on worldwide on global climate change and its impact. Mitigation measures are being mooted. Experts say Bangladesh would be one of the worst victims of any kind of climate change. How bad would it be for the country?**

**Mohammad Reazuddin (MR):** Yes, global policymakers and scientists are now shaping and negotiating mitigation measures to curb adverse impacts of climate change. Bangladesh is also a party to this process. A low-lying coastal state, Bangladesh is already a victim of climate change. We have witnessed devastating floods, cyclones in recent past. Floods in 1988 prolonged for three months. Frequency and intensity of climate adversities have increased in recent times. So, climate change has started taking its toll on our livelihood and economy.

We are an insignificant contributor to global warming. Our greenhouse gas emission per capita is just 125 kg compared to 1.2 metric tonnes of global average. Even then, our emission is "survival emission" contrary to the "luxury emission" of industrialised countries. But, the irony is that, we will be the worst affected and we are already affected.

**Q: What are the likely impacts of global warming, apart from flooding and storm surges?**

**MR:** Intergovernmental panel on climate change (IPCC) predicts that, if greenhouse gas emissions go unabated, 17.5 per cent of our land mass will go under water due to sea-level rise from the effect of global warming. The Sunderbans, the largest single tract mangroves in the world, will be threatened. Due to increase of salinity, our agriculture, which is the mainstay of our economy, will be seriously affected. Productivity will go down and we will suffer from food shortage.

**Q: Is Bangladesh taking part in the climate negotiation process seriously? Do you find all the countries are serious about it?**

**MR:** We are participating in the climate negotiation process from the very beginning. We observe that industrialised countries, which are major contributors to greenhouse gas emissions, are not yet fully committed, and serious, to combat climate change. Most of the industrialised countries have failed to keep their commitment to reduce their respective greenhouse gas emissions to the 1990 level by the year 2000, as per commitment under the Convention on Climate Change. In some countries, it is continuing to rise.

**Q: Kyoto Protocol was reached two years back. What is your comment about Kyoto Protocol?**

**MR:** We consider Kyoto Protocol, with all its limitations and inadequacies, as a milestone to face the challenge of climate change if all the nations adhere to its principles and binding commitments. The process is on to set rules and regulations for implementation of the Kyoto Protocol. In Buenos Aires, an action plan was agreed upon to conclude all the rules and regulations at the conference of the parties COP-6, to be held in the Hague, the Netherlands, next year. In Bonn COP-5, meeting we have made a substantive progress towards achieving that goal. Progress has been made to prepare draft rules in the areas on compliance mechanisms to reduce greenhouse gas emissions, national communications, capacity building and on Article 4.8 and 4.9 of the Convention which provides for necessary assistance and fund to be provided to control adverse effects of climate change and adoption needs and technology transfer to the developing countries with priority to the developed countries.

**Q: Are you hopeful that Kyoto Protocol will be ratified by industrialized countries?**

**MR:** We are concerned about non-ratification of Kyoto Protocol by the industrialized countries. However, in COP-5 meeting most of the ministers of industrialized countries have committed themselves to ratifying the protocol before 2002, so that the Kyoto Protocol can see its implementation phase by the year 2002, marking the 10th year of signing the convention on climate change. I understand that industrialized countries are waiting to see the nature of rules and regulations being prepared under the Kyoto Protocol.

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**Global emission reduction targets not enough to protect Bangladesh and small low-lying coastal countries from sea-level rise, Department of Environment Director Mohammad Reazuddin tells Quamrul Islam Chowdhury**



**Q: What are the major obstacles to the negotiating process in your opinion?**

**MR:** The major obstacle to the process is the insistence of the United States and some other developed countries on voluntary commitments by developing countries to achieve what the developing countries are opposing and the demand of the OPEC group for the compensation on the economic impact due to response measures. I hope, the countries will be able to settle all the issues amicably by COP-6.

Bangladesh made its position very clear that it wants to see "home reduction" as in our opinion "Carbon Trading" will not reduce global emission. We have noticed with satisfaction that the European Union and some Scandinavian countries have also echoed the same sentiment.

**Q: What role Bangladesh has played in the just-concluded Conference of Parties (COP-5) in Bonn?**

**MR:** Minister for Environment and Forest, and leader of the Bangladesh delegation Syeda Sajeda Chowdhury has called to establish separate funds for the least developed countries (LDCs) to meet their immediate adaptation needs and for capacity building, including technology transfer. She has also proposed undertaking special capacity-building initiatives for the least developed countries. We received G-77 support for our proposal. COP-5 has underscored the need and urgency for priority treatment of Article 4.9 of the convention which provides for necessary assistance and fund to be provided to meet adaptation needs and technology transfer for the least developed countries. In the inter-session programme between COP-5 and COP-6, advancement of this article has been given a priority.

**Q: Do you support Clean Development Mechanisms (CDM) as an instrument for carbon reduction? And why?**

**MR:** We support Clean Development Mechanism (CDM), as it meets the objective of the convention to ensure sustainable development in the developing countries. However, we have demanded that the CDM projects to be distributed regionally and sub-regionally based on equity, so that existing inequalities do not spread further. We consider certain portion of the proceeds of the CDM projects to go for adaptation fund is a step in the right direction.

**Q: What steps can Bangladesh take to adapt to the onset of climate change, or to mitigate it?**

**MR:** We are vulnerable due to climate change in all spheres of our lives. To offset the loss to lives and damage of properties due to natural calamities we are

trying to improve the forecasting and disaster preparedness programme with local level participation through awareness raising.

We can't make a sea wall along the coast line to protect the coastal area from sea-level rise. We simply cannot afford that. We are planning to build polders and embankment in our coastal areas to protect the land mass. We have some polders and embankments already existing in the coastal area. To face the challenge of sea-level rise, we will require to increase the height of those polders. All these warrant a huge investment for which we need international support.

We have prepared some cyclone shelters in the coastal areas. We require to set up more such shelters. We have gone for afforestation programmes in our coastal areas. These will at least help reduce the intensity of tidal surge and reduce loss of lives and damage to property. As the salinity will increase, we are trying to find salt resistant varieties of paddy and other crops. Our research organizations are working on that. We will also require to devise appropriate housing pattern for our vulnerable area to withstand natural calamities and sea-level rise.

**Q: Will the Protocol be enough to save Bangladesh from rising sea levels?**

**MR:** We consider emissions reduction target under the Kyoto Protocol a good beginning (in the right direction). But that's not enough to save small island states and low-lying coastal states like Bangladesh from rising sea levels.

Scientists and global community, at large, demand a higher reduction targets to stabilize the earth's climate.

**Q: The UN Environment Programme report GEO-2000 said great poverty and great wealth were the two most serious environmental threats. What way do you see to tackle those threats?**

**MR:** 'Equity' is the main issue to be considered in the global dimension to solve all global environmental problems.

Unfortunately, the gap in terms of GDP is widening between the rich and the poor nations of the world. It shows that developed countries are not complying to their Rio commitments of providing 0.7 per cent of the GDP as overseas development assistance (ODA).

The same situation is also on technology transfer. Unless additional development assistance is provided and technology transfer is materialized, the gap will widen further. We need to make Rio commitment complied by the developed countries. How can we do that? The media, civil societies, all can act as pressure group to make that happen.

**T**HE world has just experienced its hottest periods since temperatures were first recorded 150 years ago. The year 1997 was the hottest until 1998, which was even hotter and accompanied by catastrophic weather events all over the world. More than 40,000 people were killed during 1998 in weather-related events, most in developing countries.

About 45 countries were stricken by droughts while at least 54 others were soaked by floods. More than 10,000 people died in Hurricane Mitch in the autumn, one of the worst hurricanes ever to hit Central America, which also made more than 2.5 million people homeless in Nicaragua and Honduras.

In the summer of 1998, catastrophic floods all over Asia wrecked parts of India, claiming more than 10,000 casualties in Gujarat alone. Record monsoon rains destroyed as much as 10 per cent of gross domestic product in Bangladesh when two-thirds of the country was submerged, and more than 3,000 people died in month-long floods along the Yangtze River in China, which also produced 60 million refugees.

A record amount of US\$ 100 billion worth of damage was caused by weather-related catastrophes in 1998, according to Munich RE, the world's largest re-insurance company, and less than 20 per cent of the destroyed property was insured. The company says natural disasters occurred three times more frequently in the 1990s than in the 1960s, and economic damage, adjusted for inflation, was nine times higher.

The hot years of 1997 and 1998 were also El Nino years, which meant a devastating impact on fisheries, reliability of rainfall and global weather patterns. No one knows exactly how global warming and El Nino interact, but it seems such natural weather extremes are aggravated by climate change.

By early June this year, international polar research revealed that certain surface waters of the Arctic had warmed by one degree Celsius in less than 10 years, and earlier observation of a five per cent reduction of Arctic ice cover has been confirmed. But perhaps even more serious is the fact that the Arctic ice mass has decreased by 20 per cent since 1990, with as yet unknown results.

Significantly, man-made emissions of greenhouse gases broke yet another record, with the highest concentrations in the atmosphere for more than 400,000 years. The world burned more fossil fuels than ever, resulting in a global increase of about 10 per cent in carbon dioxide emissions compared to 1990.

The bulk of those emissions

come from the industrialised world, with developing countries accounting for only between a tenth and less than a quarter of the CO<sub>2</sub> produced by America, Japan or Europe. In the industrialised world, the European Union has been seen as a progressive force in countering global climate change. The EU strongly supports the view that developed countries should take responsibility for making the first moves in reducing greenhouse gases — but in practice little real action has yet been taken.

It is true that since 1990, EU emissions of CO<sub>2</sub> have grown by only two per cent. This does not mean, however, that the EU has better climate policies than other countries. Energy consumption in the European Community has grown by nearly eight per cent in decade, and only the fact that more natural gas and nuclear power were used explains why CO<sub>2</sub> emissions were not higher.

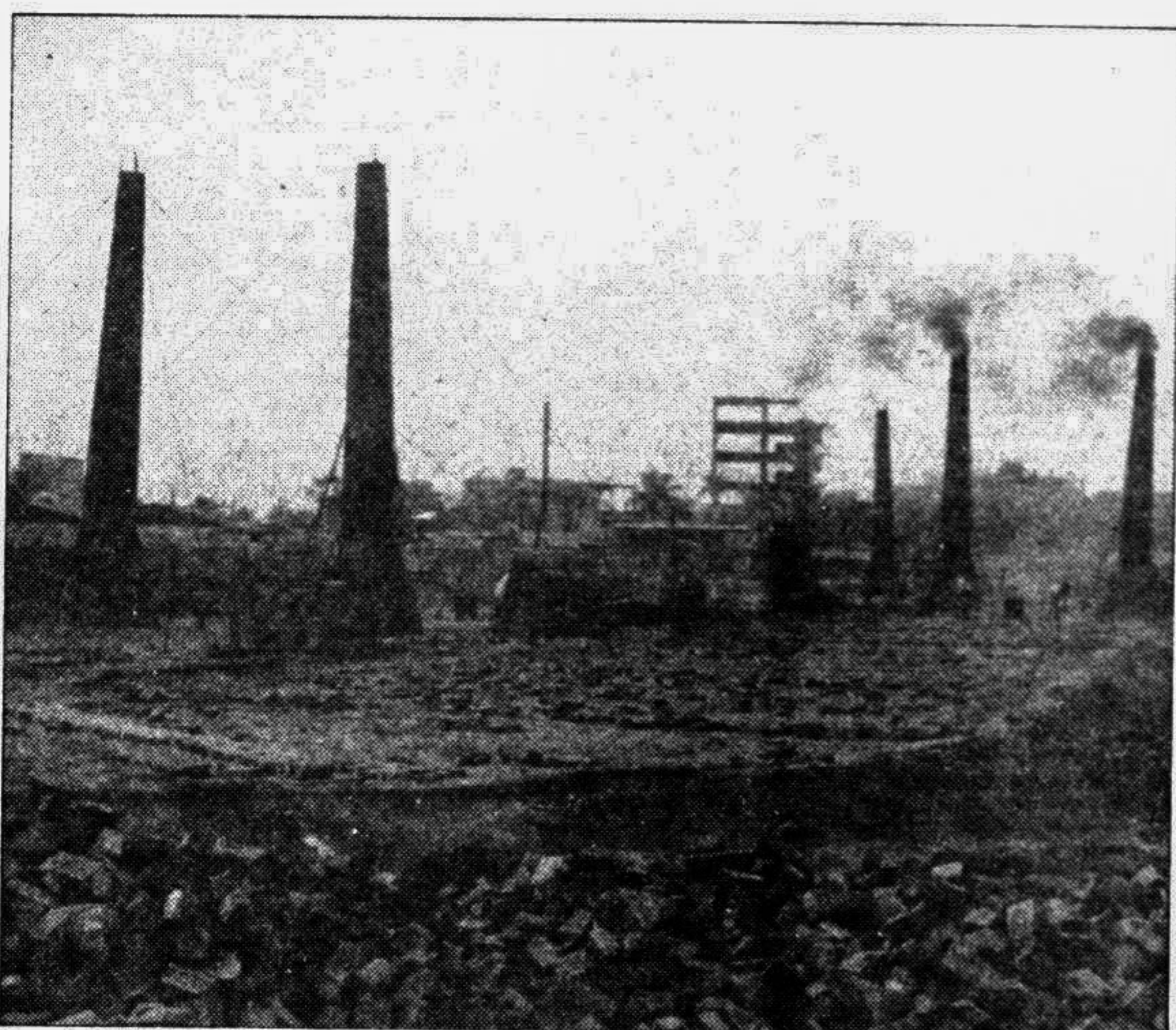
The switch to natural gas, though, came about not because it is cleaner but because gas became cheaper than coal. There are no EU policies to support a switch from dirty coal to cleaner natural gas in power supply or transport, so the "dash for gas" in EU countries would not have happened if coal had been cheaper, as in the United States and Japan.

As for nuclear power, that has its own serious problems and, with a third of the EU's electricity already coming from nuclear sources, it does not represent a sustainable energy policy. Both it and the move to gas are short-term factors, which in any case are offset by growing CO<sub>2</sub> emissions from homes, businesses and road traffic. Since 1990, only three of the 15 EU member countries have reduced their CO<sub>2</sub> emissions. These are the United Kingdom, Luxembourg and Germany. Most others increased their emissions considerably.

EU members supported the 1997 Kyoto protocol, which for the first time attempted to limit the use of fossil fuel in developed nations. But while negotiations began with the EU calling for a 15 per cent reduction in greenhouse gases by 2010, based on 1990 emission levels, the rhetoric was not matched by results.

It was finally agreed that industrialised countries had to cut greenhouse gases by a meagre five per cent on average by the first five-year commitment period, 2008 to 2012, while Russia and the Ukraine only had to stabilise their emissions at the 1990 level. In fact, Russia and the Ukraine suffered economic collapse, so energy consumption levels declined drastically and CO<sub>2</sub> emissions have so far fallen by 35 and 42 per cent respectively. Under Kyoto rules,

The European Union has placed itself on the moral high ground in the battle to combat climate change. But after the two hottest years since records began, it is clear that Europe's achievements in emissions reduction do not match its rhetoric, writes Stephan Singer from Frankfurt, Germany



Bangladesh, too, contributes to global warming

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such "reductions" can be sold to the highest bidder, which will then appear on paper as having reduced its own emissions.

Initially the EU was opposed to this arrangement and supported the concerns of the international conservation organisation WWF, and other non-governmental organisations, which wanted to focus on domestic implementation of climate policies. But negotia-

tors gave in to pressure from the USA, though this so-called "flexibility" system, will merely mean that more stringent targets for emissions reduction — perhaps 50 per cent — will be required in the future.

The fact is that a successful climate policy depends on effective domestic policies to reduce the impact of global warming. That is why WWF is campaigning for such advances as

low to zero energy housing, moving all freight on to rail instead of road, fuel cells for power and heat supply, cars with a consumption of no more than one litre per 100 kilometres, solar electricity and renewable biomass energy. Those are the real targets the EU should be pursuing.

— WWF Feature

## Marine ecosystem in jeopardy

According to a report by the World Wildlife Fund and Marine Conservation Biology Institute, rising global temperatures affect ocean ecosystems far more than previously acknowledged. From the tropics to the poles, widespread changes in marine life are occurring in step with rising water temperatures, writes Amy Mathews-Amos and Ewann A Berntson

**A** report by the World Wildlife Fund (WWF) and Marine Conservation Biology Institute (MCBI) finds rising global temperatures affecting ocean ecosystems far more than previously acknowledged. From the tropics to the poles, widespread changes in marine life are occurring in step with rising water temperatures. Especially disturbing is evidence that Pacific salmon may no longer find suitable habitat in the Pacific Ocean. Other effects of warming climate are appearing in the marine food chain, from plankton, penguins and polar bears to fisheries on which humans depend.

The report, Turning Up the Heat: How Global Warming Threatens Life in the Sea, is based on a comprehensive review of the latest scientific literature. Key findings include the ominous possibility that warming could eliminate much, if not all, marine habitat for Pacific sockeye salmon, and probably other salmon as well. Sockeyes are extremely temperature-sensitive: their metabolism increases in warmer water, requiring larger amounts of food. To avoid incurring large energy losses, the salmon must either move into deeper water or migrate northward into the Bering Sea, farther from the freshwater rivers where they spawn.

Drastic declines in western Alaska's Pacific salmon populations in 1997 and 1998 appear related to exceptionally high sea temperatures. Warm water caused a rare bloom of phytoplankton typical of warmer waters closer to the equator. Sharply reduced size of returning salmon and dramatically decreased numbers suggest large-scale starvation.

Reef fish and intertidal invertebrates provide compelling evidence that fish and other species are shifting toward the poles in response to warming. Studies of rocky reef fishes off the California coast show the proportion of northern species declining, and southern species increasing.

Scientists have also linked population decline in seabirds to the warmer water. Sooty shearwaters off the California coast declined 90 per cent in the late 1980s and early 1990s. Cassin's auklets have declined by half. In both cases, the cause

seems to be decreases in plankton which forms the base of the birds' food chain.

In Alaska, the severe decline in shearwaters from 1997 to 1998 was clearly due to starvation, as their crustacean prey was dramatically reduced in the unusually warm waters. Common murrelets also died by tens of thousands. Coral reefs, the most biologically diverse and beautiful marine ecosystems, are also at extreme risk. The upper heat tolerance for many reef corals is just a few degrees above normal temperatures. Beyond that, they expel the colourful food-producing zooxanthellae algae in a process called bleaching. If it is too

warm for too long, bleached corals die. High water temperatures in 1997 and 1998 sparked unprecedented bleaching in all major tropical regions. Large numbers of corals are turning completely white and dying, with over 90 per cent mortality in parts of the Indian Ocean.

Meanwhile, polar regions suffer worse biological impacts than lower latitudes. Sea ice is diminishing in both the Arctic and Antarctic, depriving wildlife of hunting and breeding grounds. Sea ice is habitat for the algae at the base of the polar food web. As ice shrinks, so does the food available at higher levels on the web, from

zoo-plankton to seabirds. In the Antarctic, air temperatures have been increasing since the 1950s, causing significant stress for species that depend on sea ice. Two closely-related species demonstrate the result: chinstrap penguins in the western Antarctic Peninsula have increased in numbers since the 1950s, while Adelie penguins have declined. Both eat the same prey, but Adelie winter on sea ice, while chinstraps prefer open water. Populations of crabeater seals, which also require pack ice, are falling, while southern fur, southern elephant, and other open-water seals are extending their ranges further south.

Researchers in western Hudson Bay have documented decreased weight in adult polar bears and a decline in the birthrate since the early 1980s. They suspect the cause is earlier spring breakup of sea ice. The bears use ice-floes as platforms from which to catch their prey, seals. During the summer months, bears are shore-bound and rely heavily on fat reserves to survive. The entire population must fast for at least four months after the ice has broken up, while pregnant females in Hudson Bay must fast for eight months. Alaska's Bering Sea has exhibited many ecological changes over the past decade. In addition to major, long-term declines in S.eller sea lion and northern fur seal populations, other mammal and bird species appear increasingly stressed. Small forage fish, such as herring, capelin and larval fishes, have been declining for the past five years. Species that were previously known from more southern climes have appeared in Alaska including Pacific white-sided dolphins, albacore and yellow-fin tuna, and ocean sunfish, and herring spawned earlier than ever before.

Seals and sea lions suffered considerable declines during El Nino years. For example, studies during the 1983-84 El Nino showed females had to dive deeper to find food and were away from their pups longer, causing a drop in milk production and pregnancy rates. Young seals and sea lions had reduced growth rates and higher mortality as a result.

Ocean temperatures have been rising steadily for as long as 60 years, increasing as much as 2-3 per cent in some places. With such widespread changes in marine life already occurring, the implications for even more dramatic changes in the near future are grave.

"We have ample evidence that current global temperatures are significantly higher than any time in a thousand years," says WWF's Adam Markham. "Carbon pollution from the burning of coal and oil is projected to boost temperatures at an accelerating rate in the coming decades. The longer we wait to turn down the heat the fewer our options will be."

— Third World Network

**Features**  
The authors work with the Marine Conservation Biology Institute.



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