

including nations, may disappear with rising sea levels. It is estimated, for example, that a sea level rise of one metre or three metres may displace as many as nine million or twenty-seven million people respectively in the country of Bangladesh alone. Where will these people go? The mind boggles at the thought of the cumulative effect of a simultaneous explosion in the number of refugees around the globe due to rapid and substantial environmental change.

Second, resource conflicts within and among nations are likely to increase with the loss of basic food and fresh water supplies. Increasing climatic variability will diminish agricultural productivity, especially in marginal producing areas, and lead to further conflict over access to other vital resources like fresh water. On-going disputes over freshwater resources, the Indo-Pakistani water-boundary dispute is but one example, may well be aggravated by atmospheric change. Some 214 river basins are shared by two or more countries and twelve river basins are shared by five or more countries. Even in the absence of climatic change, pressure on these resources from rising population will grow.

Third, global power balances may well be affected by environmental change. Major grain importers, like the Soviet Union, could find their dependence on international markets increasing because of adverse climatic developments. Similarly, traditional grain exporters, like the United States, could find their surpluses diminishing with the loss of arable land because of environmental change. These scarcities may increase internal instability within the Soviet Union and its Eastern European allies, or weaken the economic capacity of the United States. Diminished access to scarce resources like food and energy may also encourage presently demilitarized states,

like Japan, to acquire military capabilities to ensure access to increasingly scarce resources.

Fourth, changing climatic conditions may also increase international conflict in the Arctic and Antarctic regions, especially in those areas where sovereignty claims are unresolved. The possible withdrawal of summer pack ice because of atmospheric warming would leave much of the Arctic Ocean ice-free. While this would offer new opportunities for marine transportation and increased use of the Northeast and Northwest passages, greater accessibility could encourage challenges to Canada's sovereignty in its northern territory. Unresolved sovereignty claims in Antarctica might also be exacerbated if this region became more accessible because of climatic change. The military-strategic importance of both these regions might also increase with greater access because of warmer weather.

THE CONFERENCE UNDERSCORED the need for governments to re-define their national security and military spending priorities, and to address the geopolitical dimensions of climatic change in resource allocation decisions. The

conference statement quotes the UN Report on the Relationship Between Disarmament and Development, "... It must be acknowledged that the arms race and development are in a competitive relationship, particularly in terms of resources, but also in the vital dimension of attitudes and perceptions." It goes on to say that the same consideration applies "to the vital issue of protecting the global atmospheric commons from the growing peril of climate change."

At the same time, it acknowledged that climatic change presents new opportunities for international co-operation straddling East-West, North-South divisions. The atmosphere is a "commons" and must be treated as such. An international coordinated effort will be required to reduce the emissions of greenhouse gases and climatic effects. Although a "law of the atmosphere" is needed to help govern and care for this global commons, governmental and non-governmental, individual and group actions are also required in the interim. We must do what we can now, rather than wait for an all-encompassing agreement.

In addition, special attention

will have to be paid to the needs of the developing countries and resources transferred from rich to poor. As Emil Salim, Indonesia's Environment and Population Minister explained, "The poorer nations by force of their lower state of economic development have applied the greatest restraint in their contribution to the problem of global climate change. Yet given the pattern of population increases projected into the next century, and the continued dependence of these populations on natural resources for livelihood and survival, the developing nations may well sustain the heaviest losses as a result of atmospheric deterioration."

Moreover, developing countries will have difficulty assuming their fair share of the burden in efforts to prevent global atmospheric change. For them to forego the use of fossil fuels in their industrial development or the use of other fuels such as wood for domestic purposes will be expensive. Development assistance will therefore have to respond to both the immediate and long-term consequences of climatic change in the Third World.

The geopolitical working group of the conference summarized the global challenge:

The steps required to prevent damaging changes to the atmosphere – slowing the release of pollutants and eventual stabilization of the composition of the atmosphere – must be international in scope. As such, they bring us face-to-face with longstanding global needs: stabilization of the world's population size, relaxation of military tensions and disarmament, and a decrease in the disparity of wealth consumption, and opportunity within and among nations.... Perhaps the newly recognized imperatives for cooperation on crucial climate problems will provide new avenues for consideration of the older issues. □

INCREASING CONCENTRATIONS OF TRACE GASES IN THE ATMOSPHERE

Gas	Rate of increase (% per year)	Effects	Sources	Lifetime (in yrs.)
Carbon dioxide	0.2 – 0.7	greenhouse effect	volcanos; coal and wood combustion; anaerobic decomposition	10 – 15
Methane	1 – 2	greenhouse effect	livestock production; oil, coal, and wood combustion; anaerobic decomposition	7 – 10
Nitrous oxide	0.2 – 0.3	greenhouse effect; ozone depletion	fossil fuel combustion; agriculture; aerobic decomposition	100
Chlorofluorocarbons (CFC-11, CFC-12)	>5	greenhouse effect; ozone depletion	aerosols, coolants-in airconditioners and refrigerators; industrial solvents; plastic foamers	50 – 100

Source: Adapted from World Resources 1987, Basic Books Inc., N.Y.