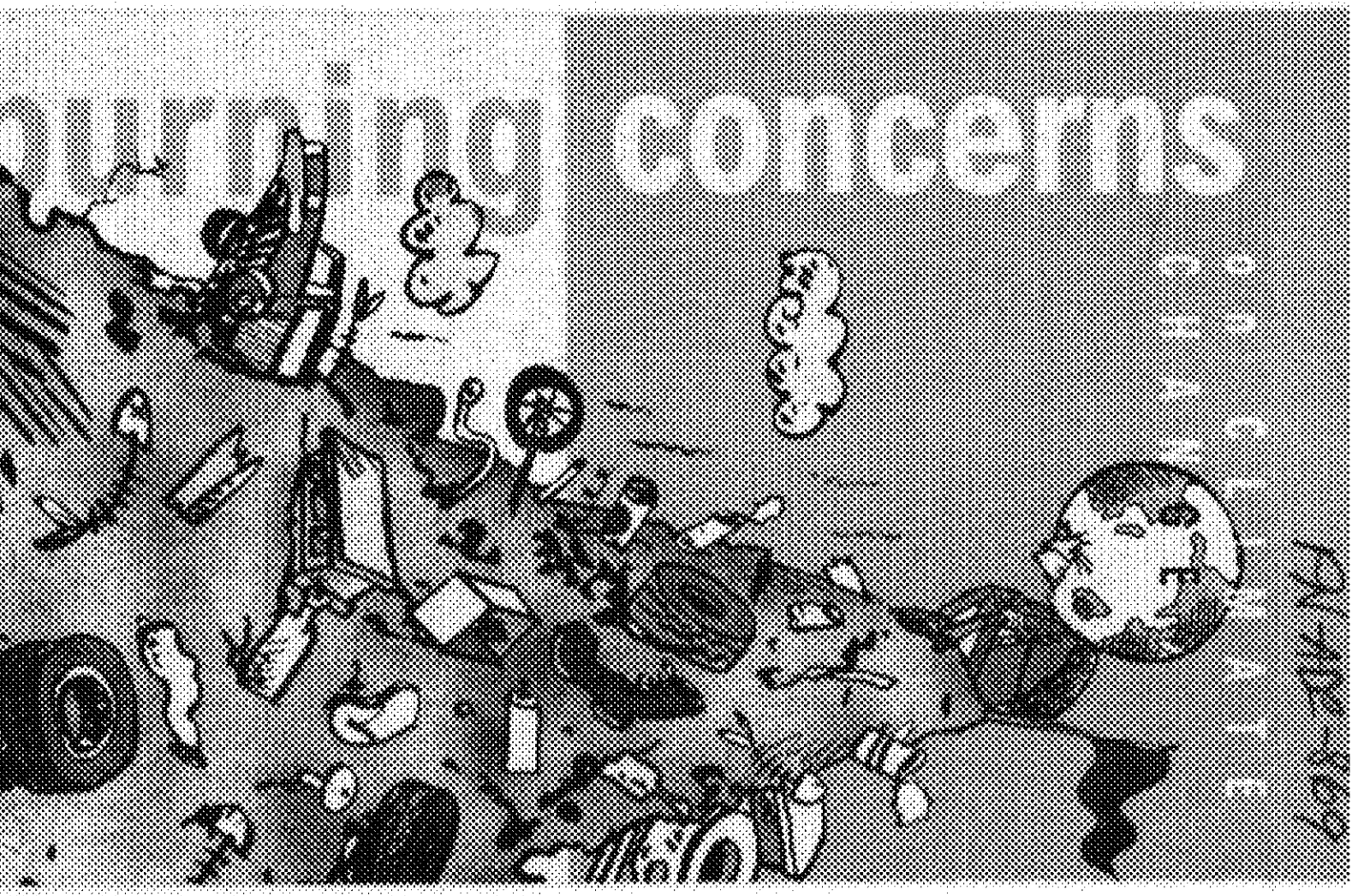
concerns

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How true is global warming?

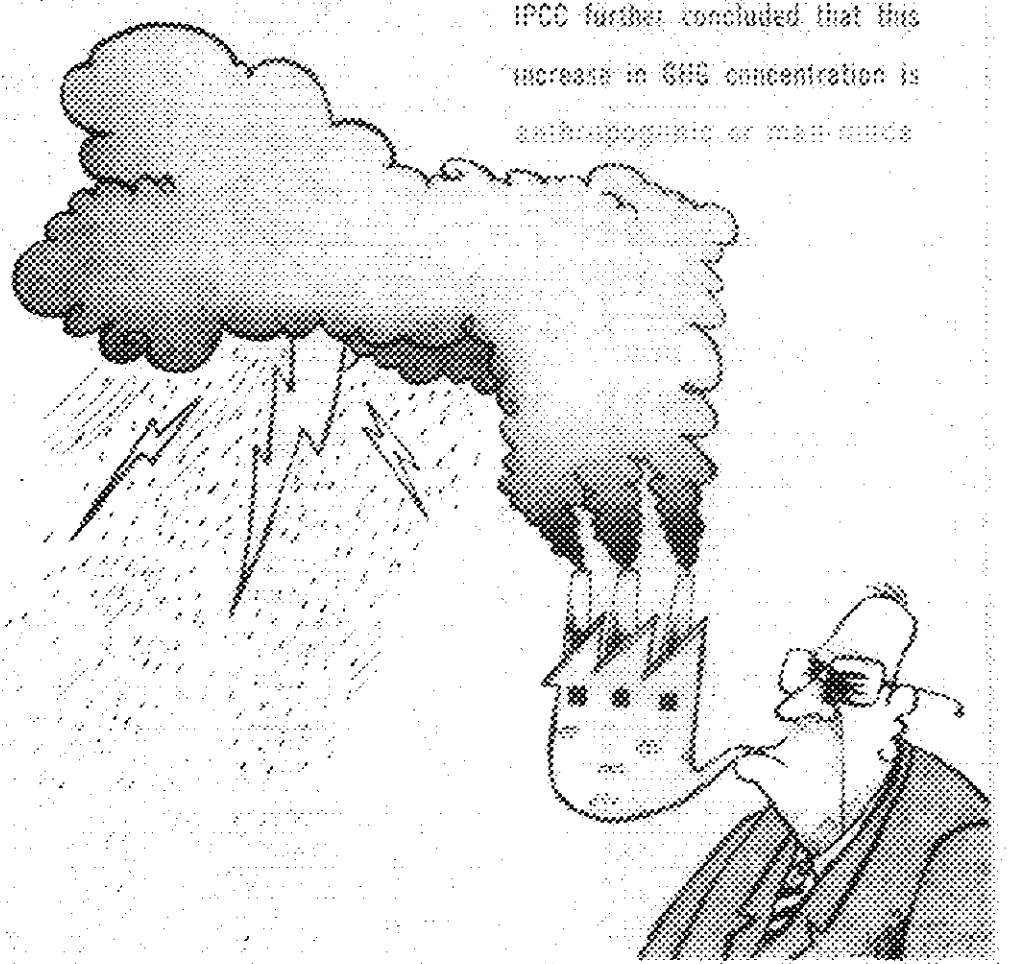
We are already experiencing global warming.

1990, 1995, 1997 and 1998 were the hottest years since the Industrial Revolution in 1850 when man began to extensively use fossil fuels and exploit the Earth's natural resources. Global temperature has risen by about 0.3° C to 0.6° C since then.

Experts from the Intergovernmental Panel on Climate Change (IPCC) has confirmed that the Earth's accelerated warming has been responsible for the extreme climatic occurrences the whole world is experiencing [1].

What causes global warming?

Global warming is caused by the increase in greenhouse gas (GHG) concentration in the atmosphere, trapping more heat near the Earth's surface. The IPCC further concluded that this increase in GHG concentration is anthropogenic or man-made.



The greenhouse gases are:

* Carbon dioxide (CO_2) from machines and motors that use coal, oil and natural gas, and also from deforestation;

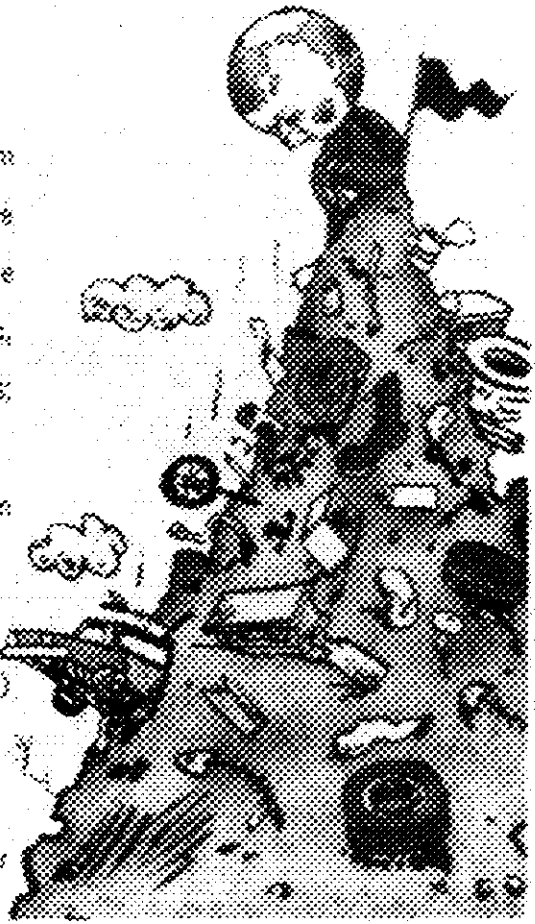
* Methane (CH_4) primarily from agricultural activities such as intensive livestock raising and flooding of rice paddies, and also from waste dumps, coal beds and leaks from gas pipelines;

* Nitrous Oxide (N_2O) from intensive agriculture;

* Chlorofluorocarbons (CFCs) from industrial processes;

* Ozone (O_3) in the lower atmosphere indirectly from automobile exhaust fumes; and

Water vapor. However, they are produced primarily from the naturally occurring water cycle.



What could be the effects of global warming?

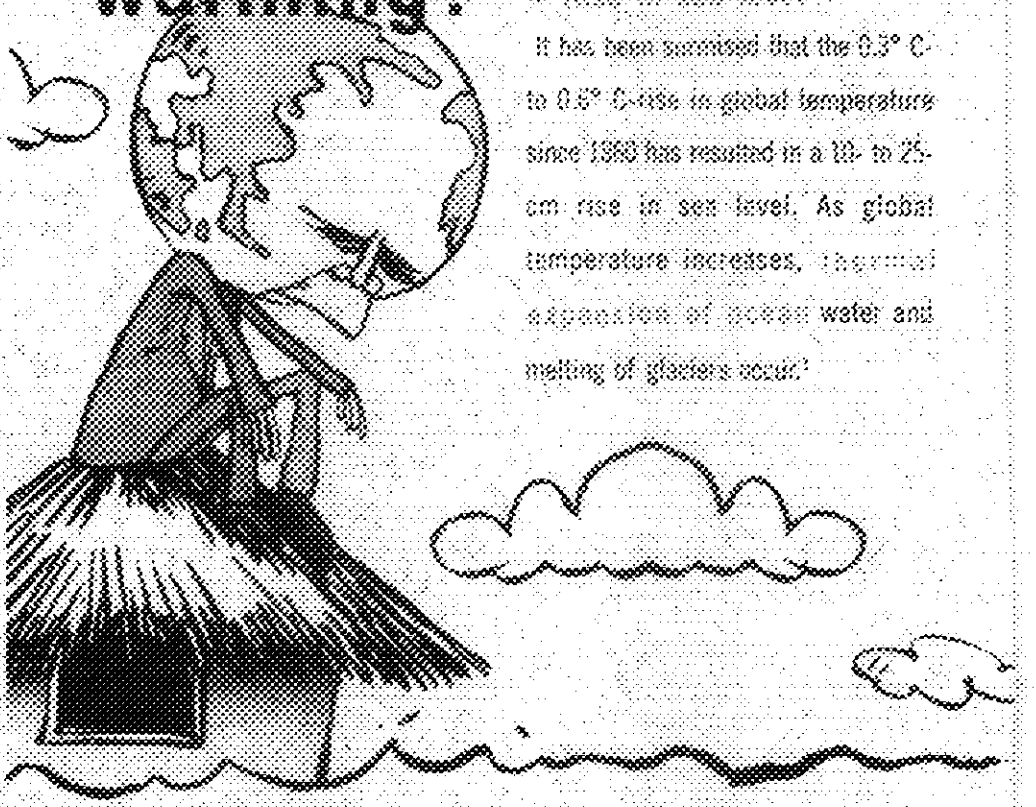
A warmer weather could mean any or all of the following:

* Extreme weather condition

Already, the Philippines has experienced more frequent storms, floods, landslides and drought that have wreaked havoc on our agriculture, infrastructure and the lives of millions of people.

* Rise in sea level

It has been surmised that the 0.3° C- to 0.6° C-rise in global temperature since 1900 has resulted in a 10- to 25-cm rise in sea level. As global temperature increases, thermal expansion of ocean water and melting of glaciers occur.

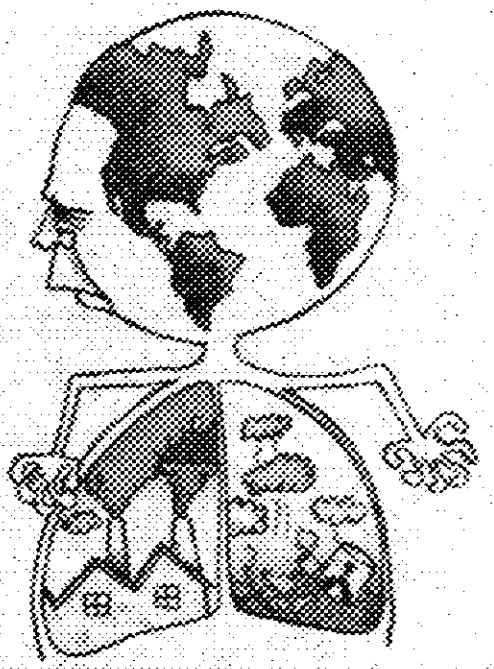


* Health problems

Higher temperature will induce more cardiovascular and respiratory diseases. Incidents of dengue fever, malaria, yellow fever and other tropical diseases will likewise continue to increase as better temperatures are more suitable in breeding of mosquitoes and insects that carry these diseases.

* Destruction of ecosystems

For every degree Celzius rise in global average temperature, forests will experience a rise in occurrences of fires and pests. Entire forests could disappear because their functions and compositions will be severely affected. Plant species that are unable to cope with severe drought and heat waves would become extinct, and could result to food shortage.



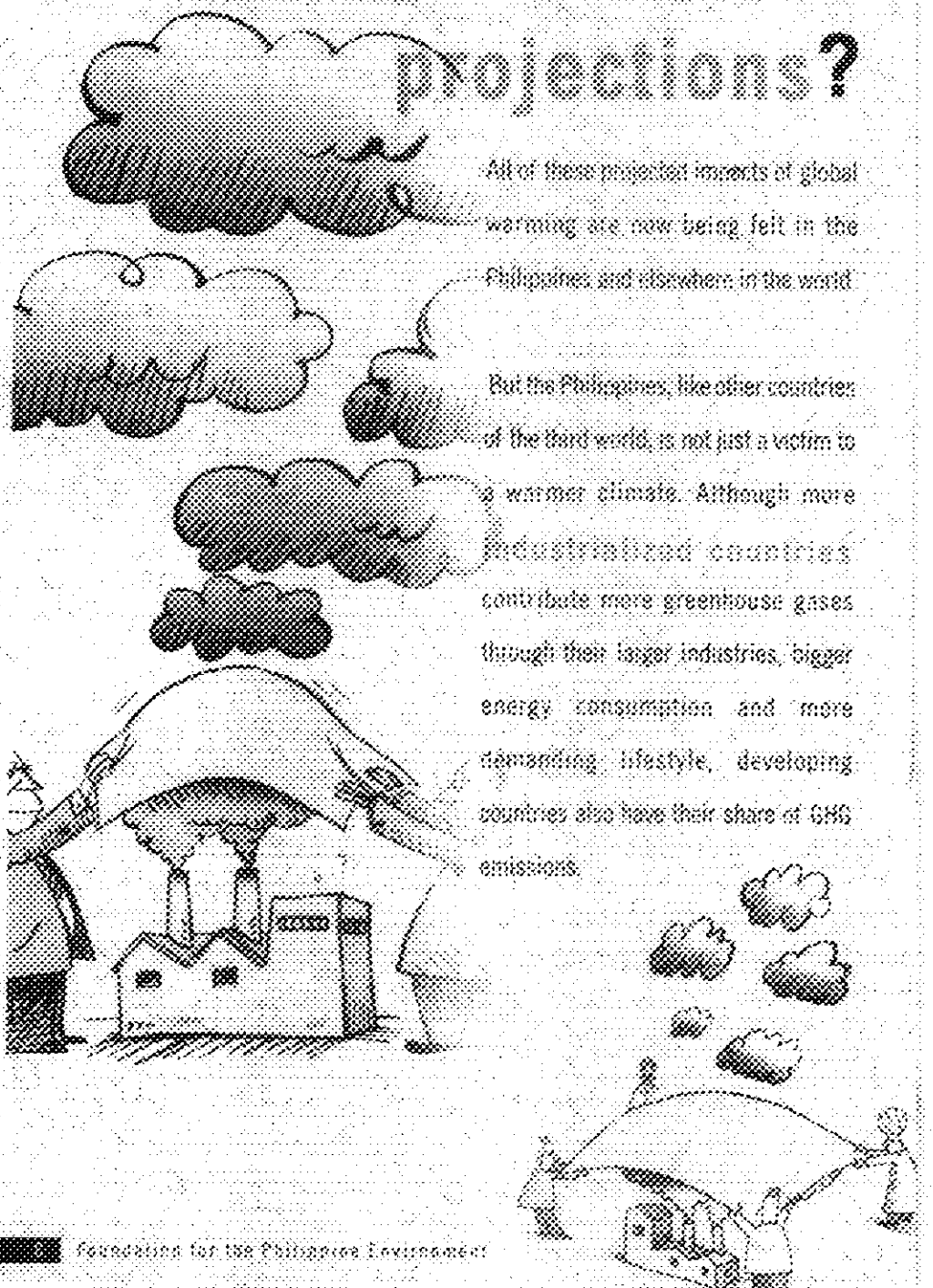
* Coral bleaching and death to corals

Corals, which are home to varieties of fishes and algae, are very sensitive to abrupt changes in water temperature. When subjected to a 2° C. to 3° C. increase in water temperature for about three days, the algae will be expelled from the corals, denying the corals of their main food. The corals will turn white and die.

How true are these projections?

All of these projected impacts of global warming are now being felt in the Philippines and elsewhere in the world.

But the Philippines, like other countries of the third world, is not just a victim to a warmer climate. Although more industrialized countries contribute more greenhouse gases through their larger industries, bigger energy consumption and more demanding lifestyle, developing countries also have their share of GHG emissions.



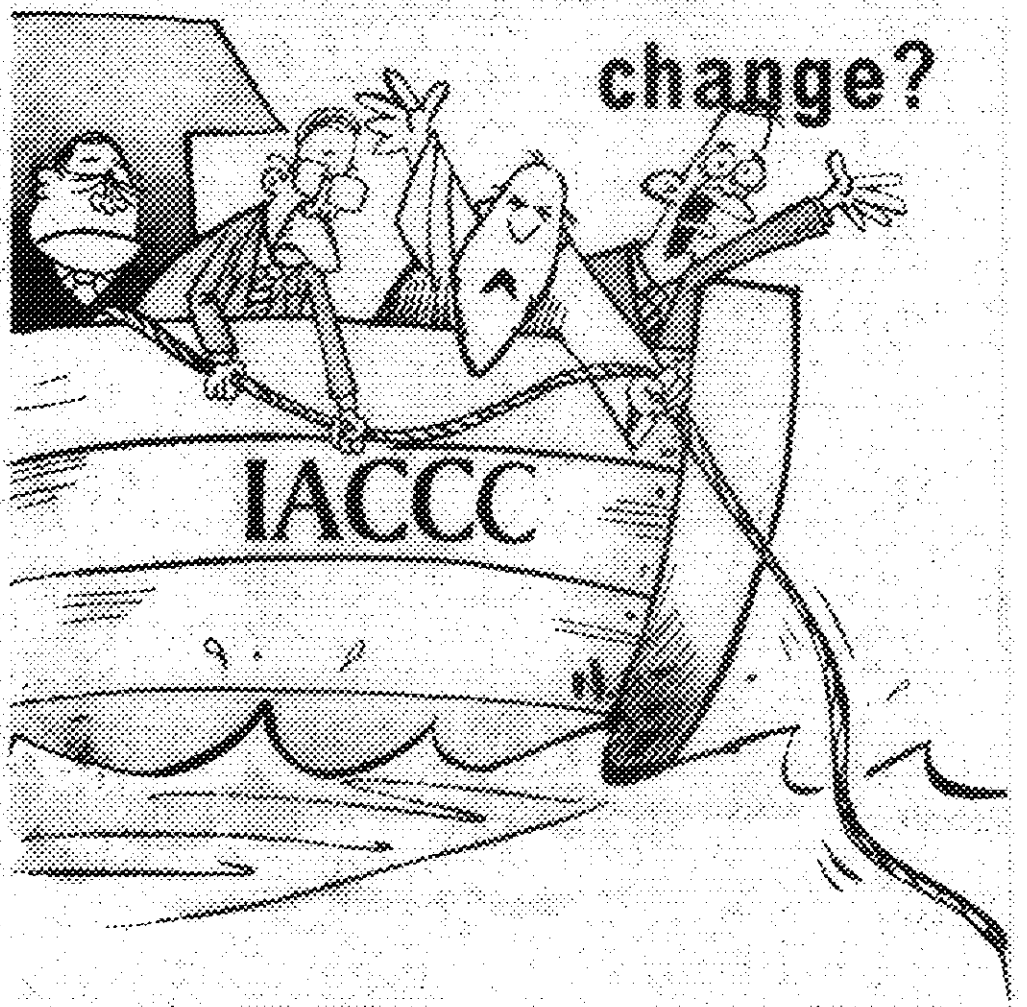
In the 1994 Greenhouse Gas Inventory of the Philippines, conducted by the Manila Observatory and released in October 1998, the country's energy, industry, agriculture and waste sectors emitted 104,765 Gigagrams (Gg) of carbon dioxide.

Although this number is relatively minute when compared to the industrialized countries' GHG emissions, the 1994 report is already alarming when taken in the national context.

Of the four major sectors, the energy sector accounted for about 51 percent of the total carbon emitted.

Compounding the problem is the degradation of our forest, which is known to absorb CO_2. From the 27.5 million hectares of forest land noted in 1976, which is about 92 percent of the total land area of the country, only 18.3 percent or a little over 5 million hectares are left by 1996.

What is the government doing to combat climate change?



At the international level, the Philippine government has consistently participated in worldwide conferences and conventions and ratified agreements arising from these such as the United Nations Framework Convention on Climate Change.

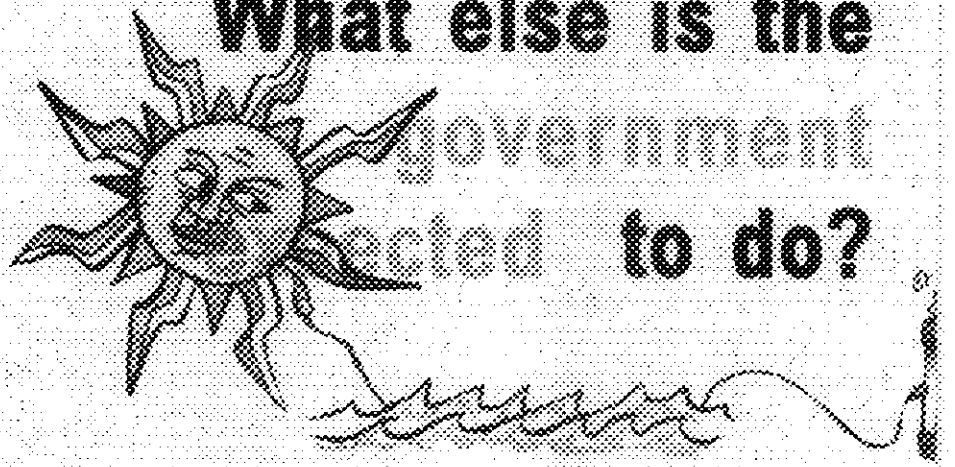
At the national level, the Philippines has formed the Inter-Agency Committee on Climate Change (IACCC) through Executive Order 226 in 1991, composed of 15 government agencies and non-government organizations (NGOs), to provide the government technical support on matters concerning climate change.

Through the IACCC, the National Action Plan on Climate Change was created in 1997. The Plan aims to integrate concerns on climate change into the mainstream processes of development planning by the various agencies of the government and ultimately, the local government units.

There are also various laws that aim to protect the environment and help reduce emission of greenhouse gases.

However, much is yet to be done to check the country's GHG emission and ameliorate the projected impacts of global warming.

What else is the government expected to do?



* Energy mix.

The use of alternative sources of energy such as those harnessed from the sun, wind, water and waste will lessen the heavy dependence on fossil fuels, which is the primary source of CO_2.[5]

Emphasis should also be given to:

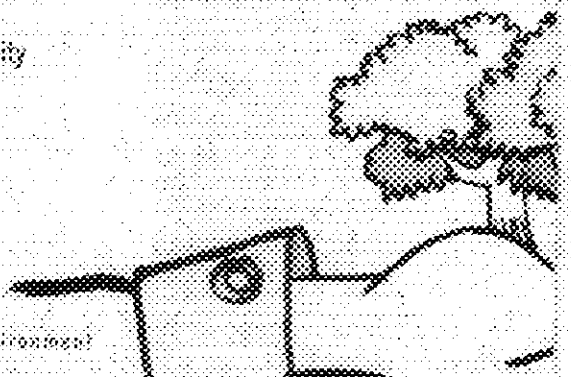
* reduction of energy consumption;
* mass transport and better traffic management;
* efficient engines and better-quality fuel; and
* energy saving devices.

* Waste management.

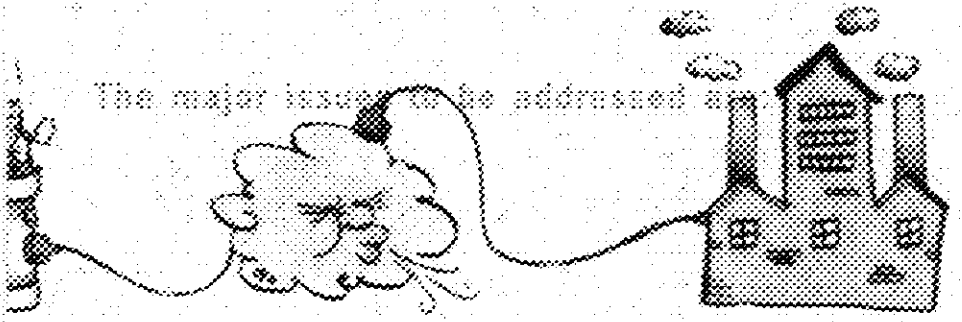
There is much to be done in this regard, considering the current state of our waste management[7], and its relation to the rapid increase in population, urbanization and growth of industry.[8]

Emphasis should also be given to:

* recycling; and
* community-level waste management.



A solid political will is needed for the legislative branch to ensure that there are enough laws that will particularly address this problem, and that the executive branch should ascertain the full implementation of these laws.



The major issues to be addressed are:

* Agriculture & Land use

Resolve the issue on sustainable forestry management by imposing a log ban on old growth and residual forests... and by undertaking massive reforestation of denuded areas.*

Emphasis should also be given to:

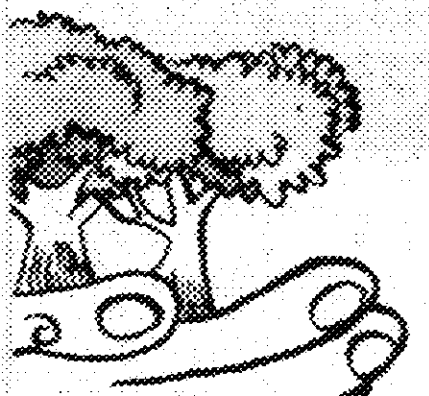
* Research and introduction of heat- and drought-resistant plant varieties.

* Water resources management.

As water is vital for industrial, agricultural and residential operations, the government should anticipate the projected increase in the incidence of drought, salt water intrusion and coral bleaching.

Emphasis should also be given to:

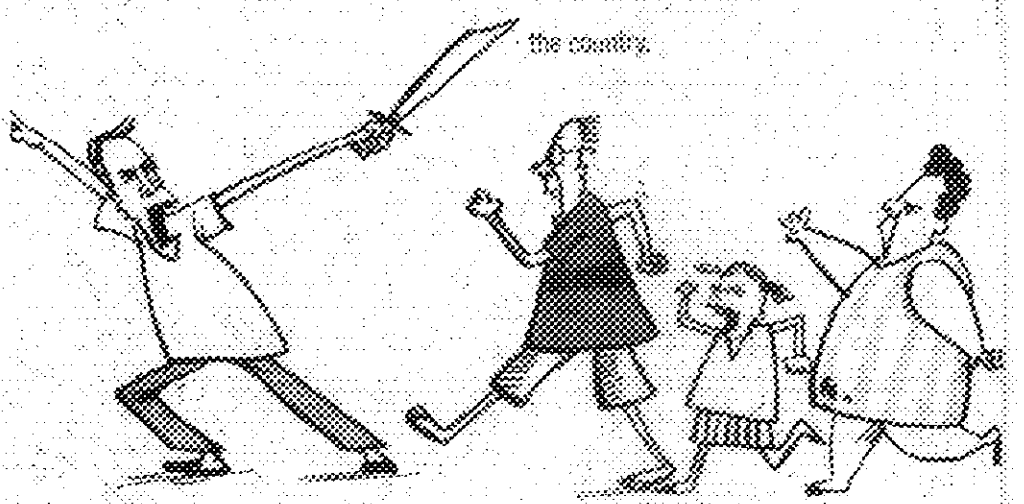
* protection and rehabilitation of watershed areas;
* better irrigation system and management; and
* rehabilitation of rivers.*



In addressing these issues, both the executive and legislative branches might wish to look into:

* The integration of these response measures to climate change with long-range and medium-term economic planning.

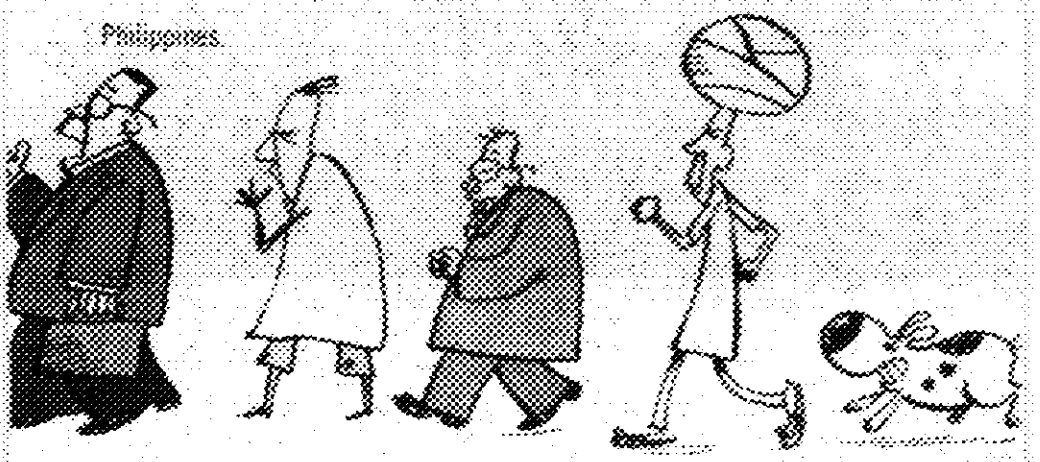
* Harnessing institutional mechanisms at different levels. For example, the Clean Development Mechanism under the Kyoto Protocol can provide financial and technological resources for the country.



* Getting involved in negotiations for future agreements on climate change. The government should firm up its position regarding the non-agreement of developed countries on the Kyoto Protocol that clearly mandates them to take primary responsibility in the reduction of greenhouse gases. Another position to be taken is the projected percentage in the reduction of GHG emissions by developing countries like the Philippines.

* Institutionalizing inter-agency approaches. Climate change is a national concern and thus, cannot be solved by any one department alone.

* Institutionalizing the participation of the private sector, communities and individuals. This would require a change in lifestyle, consumer patterns and behavior, massive education campaigns, and market incentives.



E N D N O T E S

[1] The IPCC is composed of about 2,500 scientists from the academic, environmental groups, industry, and government from more than 150 countries.

[2] The International Red Cross World Disaster Report 1998 says that extreme climatic occurrences in 1998 from China and India, through the Philippines and Central America killed about 20,000 people and severely affected the lives of more than 250 million.

[3] In a study, Potential Impacts of Climate Change in the Philippines, accelerated sea-level rise (ASLR) is projected as: Most areas along the coast of Manila Bay, specially in the areas of Cavite City, Noveleta, Kawit, Imus, Bacoor, some parts of Las Pinas and Parañaque, Navotas and some parts of Bulacan will succumb to one meter sea level rise. Even inland areas would be affected specially near riverbanks.

[4] To date, there remains about 27,000 hectares of coral reefs in the Philippines. Of the 742 stations monitored, 5.3% are in excellent condition (75-100% live coral cover); 25.2% are in good condition (50-74%); 39% are in fair condition (49.9-25%); and 30.5% are in poor condition (0-24%).

[5] There will be a poleward shifting of climate and agricultural zone because of global warming, that is, a shift of 200-300 kilometers for every degree Celsius in the rise of temperature.

[6] In the 1994 Green House Gas Inventory of the Philippines, conducted by the Manila Observatory and released in October 1998, the country's energy, industry, agriculture and waste sectors emitted 164,765 Gigagrams of carbon dioxide.

[7] Metro Manila alone, in 1996, generated more than 6,000 tons of solid waste per day. Collection efficiency is estimated at 80%. Disposal sites and facilities have an estimated shortfall of more than 1,500 tons per day.

[8] Of the 1,600 urban areas, there are 121 major urban centers that account for 32% of the nation's population. Urbanization eats up about 20,285 hectares of arable land per year, as was recorded from 1980-1990.

[9] Compounding the problem is the degradation of forests which are known to absorb CO2 and in reverse, emit oxygen. From the 27.5 million hectares of forest noted in 1575 or 92% of the total land area, only 5.6 million hectares are left by 1995 or about 18.6%.

[10] Of the 207 classified rivers all over the country: only 82 can still be tapped for public water supply; 28 can be used primarily for contact recreation (bathing, swimming, etc); 89 for fishery propagation, boating and industrial water supply, and seven only for agriculture, irrigation and livestock.

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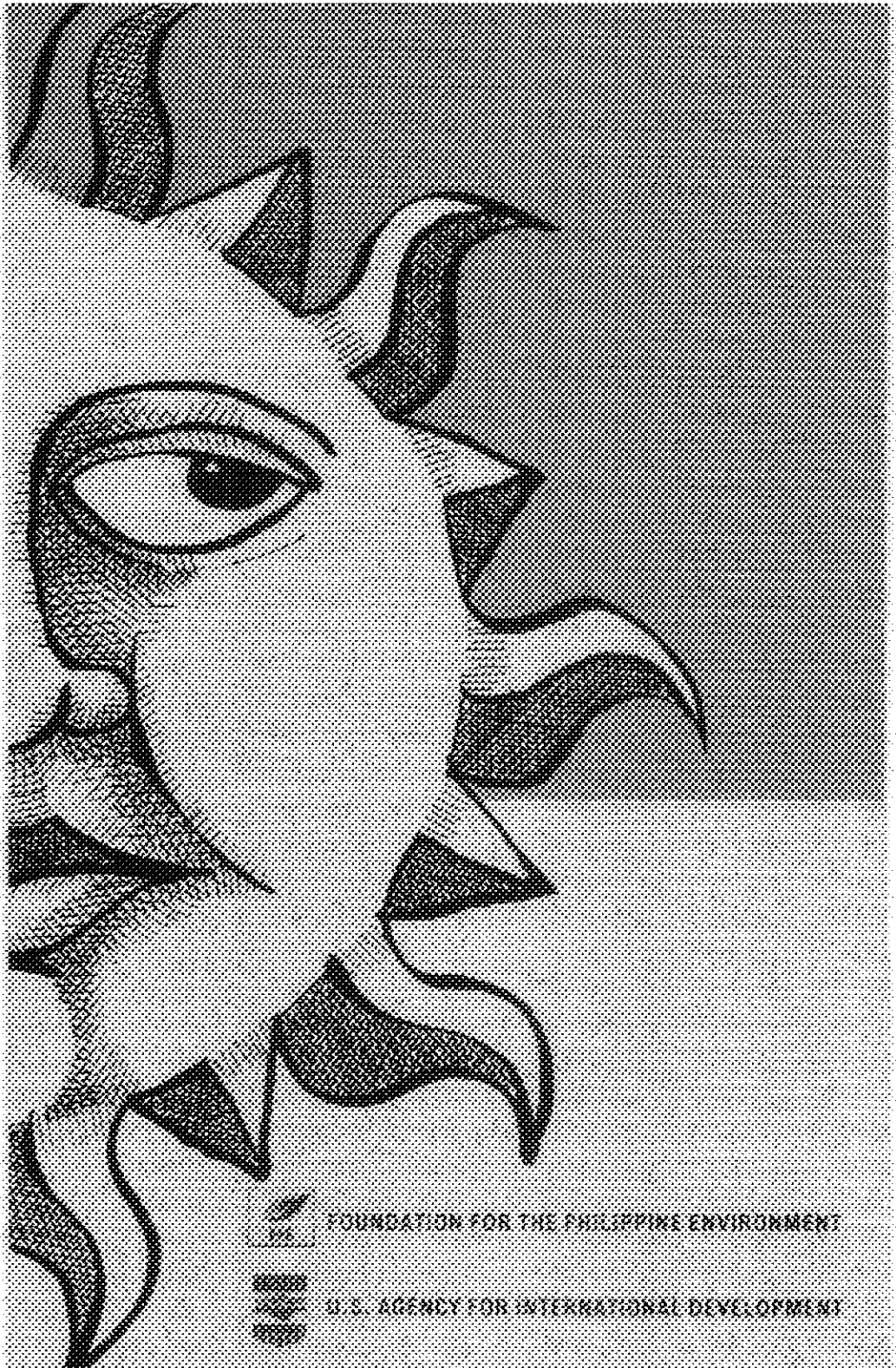

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