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Folder Title:
Environment - Japan [2]

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Marine Conservation *n • e • w • s*

Published by the Center for Marine Conservation

Vol. 3, No. 3

Autumn 1991

Japan Will Ban Hawksbill Trade by December 1992!

On June 19, in a flurry of last minute negotiations between U.S. and Japanese officials, Japan agreed to end its trade in hawksbill sea turtle shell within the next eighteen months.

The agreement is a direct result of a petition filed last year by CMC, the National Audubon Society, the National Wildlife Federation, and the Environmental Defense Fund (see *Marine Conservation News* Spring and Summer 1991).

Although the Convention on International Trade in Endangered Species (CITES) has protected hawksbills from international trade since 1975, Japan took an excep-



Hawksbill jewelry in Japanese store. Photo: Kathy O'Hara/CMC. Hawksbill sea turtle. Photo: Peter Pritchard

tion to the trade ban when it joined CITES in 1980. The Japanese demand for hawksbill shell, which is used primarily to make jewelry and other luxury items, has fueled the slaughter of this species and created an illegal black market for turtle shell.

CMC has been working for nearly a decade to end the Japanese hawksbill trade, and we have compiled important information about the trade routes from the Caribbean and other areas and illicit trade practices. Although we met with Japanese government officials and shell importers many times in the past, the abuses we documented were ignored. Finally, in April 1990, we filed a petition requesting

that the U.S. government take action against Japan.

Since March 20, when the Departments of Commerce and Interior formally censured Japan for its trade in endangered hawksbill and olive ridley sea turtles, Japan has attempted to avoid an embargo of its wildlife exports to the United States. The major breakthrough occurred on May 17 when Japan announced that it *would* ban hawksbill trade, but at a time to be announced later. Since then, Japanese and U.S. negotiators have been trying to work out a compromise acceptable to both sides.

Until the ban takes effect, Japan will import 7,500 kg of shell,

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Thank You!

We would like to extend a special "thank you!" to all the CMC members who helped with our efforts to stop Japan's importation of endangered hawksbill sea turtles. Your donations, as well as your postcards, telegrams, and phone calls to the Japanese Embassy truly made a difference.

We appreciate your support and thank you again for your commitment to preserving the endangered hawksbill sea turtle.

From the President

Margaret Meade once said, "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has." In making an institution like the Center for Marine Conservation an effective force for conservation, we strive to make a difference—to change the world.

We secure the resources and the logistical support our program staff needs, and we work closely together to plan our strategies and to carry them out. In the final analysis, however, as Ms. Mead admonishes, it all boils down to extraordinary people doing extraordinary things.

This newsletter tells many remarkable stories, but I am going to focus on two of them and two individuals—Marydele Donnelly, the head of our sea turtle conservation efforts, and Linda Maraniss, the director of our Gulf States regional office in Austin, Texas. These are remarkable women, who are truly changing the world.

On page 1, Marydele Donnelly reports on the Japanese government's decision to end the trade in hawksbill sea turtle shell. For years, Marydele has led Center efforts to stop this trade, the major threat to this species' continued existence. By organizing a coalition of major conservation organizations and care-

fully documenting the trade and its impacts on sea turtle populations, Marydele has been a key figure to achieving this victory.

The Japanese government's decision was politically difficult and signals a major step toward reconciling their past policies regarding natural resource exploitation and the international leadership they seem poised to assume.

On page 9, you will read Linda Maraniss's report on the Center's (read her) efforts to stop big industry from ruining the precious few gems of natural habitat left unspoiled on the Gulf Coast. A major resort developer wanted Texas citizens to pay for the infrastructure, roads, and utilities for its development on South Padre Island.

The developer talked Texas state legislators into introducing legislation to provide bonding authority for subsidizing the developer's schemes. The developer ran full page ads in Texas newspapers asking, "Protect or Neglect... What's the Plan for the Texas Coast?" A *Washington Post* reporter called the ads "Orwellian"...we knew what their plans for the Texas coast were. And, after Linda was finished, no Texas politician could fail to acknowledge that they knew, too.

The bill finally died in May, as the legislative session was ending. One lobbyist for the developer asked Linda, "Who are you people?" Someone should have warned them what they were up against when they riled Linda Maraniss.

In a letter to Linda, Carlos F. Truan, President Pro Tem of the Texas Senate, thanked her for her "splendid testimony," and for her work to enlist public support against the bill. He concluded by noting that continued vigilance is necessary to stop such attempts in the future.

We need the Lindas and Marydeles, and we need your continued support to maintain that vigilance.

—Roger E. McManus

In Memoriam

We would like to express our deepest sympathy to the families and friends of Theodore "Chad" Tatum and Todd Charles Barton, who were killed during an automobile collision in Orlando, Florida, on May 26, 1991.

Chad's family told us of his love for sea turtles, and friends have made donations to CMC's Florida sea turtle projects in Chad and Todd's memories.



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Marine Conservation News is published quarterly by the Center for Marine Conservation, 1725 DeSales Street, NW, Washington, DC 20036 (202) 429-5609. All comments and address corrections should be sent to the above address. Material may be reprinted if appropriate credit is given.

Japan Ends Hawksbill Imports

• (continued from page 1)

representing about 7,000 sea turtles (current imports are about 18,000 turtles a year). The announcement that hawksbill imports will end in 18 months has thrown the hawksbill carving industry into disarray. In Nagasaki, where hawksbill shell carving is a major industry, the newspapers have compared the U.S. pressure to being "a second atomic bomb."

While CMC has been the leading critic of Japan's hawksbill trade, we appreciate the complexities and difficulties of Japan's decision to ban the trade and applaud their action. We hope that this agreement marks a turning point in the relationship between Japan and conservationists around the world.

Because Japan will host the CITES meeting next March, scrutiny of Japan's wildlife trade is increasing. Government officials there are working hard to improve

Japan's image as environmental "bad guys."

Japan is one of the world's major importers of the products of endangered species and has been cited for trade violations many times in the past. In part this is because concern for wildlife and the environment in Japan has lagged behind that in other countries. [ed. However, there are signs this is changing. See article on U.S./Japan conservation exchange on page 17.]

Hawksbill sea turtles are still threatened by the same problems all turtles face, including marine pollution and debris, habitat destruction, and accidental capture in fisheries. But the Japanese trade was the most severe and immediate threat, and with the resolution of this issue now in sight, conservationists believe that this beautiful turtle may have a future after all.

—Marydele Donnelly

Sensitivity is Key to Progress with Japan

Japan's recent decision to ban hawksbill imports under threat of U.S. sanctions is the latest in a history of painful conflicts over wildlife issues between our two countries—conflicts that parallel our trade disputes, in which the U.S. has historically made very strong demands and Japan has eventually acquiesced after bitter negotiations. Many Japanese feel Americans vent their frustration over the trade deficit by attacking Japan's wildlife use.

As the U.S. economy worsens, American attitudes toward Japan grow increasingly hostile, due to perceptions that Japan is an unfair trader. Because the United States is Japan's most important market, many Japanese leaders worry that their negative image could result in U.S. protectionism against Japanese goods, which could damage their economy.

So, it is important for conservationists to stress the positive

effect that improving Japan's environmental record could have on American public opinion.

This positive approach will also help environmentalists avoid being labeled "Japan bashers," a stigma which has hampered progress on environmental issues in the past.

In the end, it is most important to remember that no two countries in the world can match the financial and scientific resources of Japan and the United States, and that our cooperation in solving environmental problems is essential to the health of the planet.

—Nicholas Bennett

Nicholas Bennett is a summer associate with CMC's sea turtle program. Currently a graduate student at the Yale School of Forestry and Environmental Studies, he focused his undergraduate studies on Japanese history and language, and lived in Japan for two years.

Most Shrimpers Complying with TED Regulations

As we go to press, shrimpers' compliance with the regulations requiring Turtle Excluder Devices (TEDs) continues to be good. As of June 10, compliance for the year was 92 percent in the Atlantic and 82 percent in the Gulf of Mexico. Currently, TEDs are required from May 1 to August 31 in the Atlantic and from March 1 to November 30 in the Gulf.

The need for TEDs in more waters at more times of the year was sharply illustrated this spring with the deaths of dozens of sea turtles in Georgia. Because this year was warmer than usual, shrimping activity in Georgia was high in April when TEDs were not required. Unfortunately, but not surprisingly, more than 90 sea turtles stranded on Georgia beaches.

For the last several years, increased strandings have also occurred in the fall on Atlantic beaches, after the date TEDs are no longer required, but during sea turtle migration season.

Like 1990, 1991 appears to be an excellent year for turtle nesting. While sea turtle nesting cycles vary from year to year, the last two years of TED use have coincided with increased nesting.

Unfortunately, political foes of TEDs have delayed the implementation of expanded TED regulations. CMC is working with the government to ensure that the regulations currently in effect will be extended beyond their seasonal date of August 31 in the Atlantic to prevent the autumn strandings.

These same political forces are again supporting legislation to hinder enforcement of the TED regulations, and give shrimpers incredible tax breaks. This bill never got out of committee last year, and is a part of the continuing saga of the waste of valuable taxpayer dollars by certain Gulf politicians.

—Marydele Donnelly

Texas Coastal Development Bill Defeated!

A few wise legislators, some sports fishermen, an 87-year-old former Texas Senator, and a large group of environmentalists from around the state helped kill Senate Bill 1094, called "the worst environmental bill of the Texas legislative session" by environmentalists.

CMC staff testified against the bill at Senate and House hearings in April and May. The bill's main backer was the American General Insurance Company, which had hoped that the legislation would help them fund a \$2.5 billion resort on land owned by the company on

South Padre Island. The resort would seriously alter the environment of Laguna Madre, one of only five hypersaline lagoons in the world (see *Marine Conservation News*, Summer 1991).

After a difficult and protracted session, in which Senator Carlos Truan valiantly filibustered for 17 hours against the bill, the Senate approved it by an 18 to 12 vote.

The bill then went to the House Environmental Affairs Committee. American General officials and their lobbyists filled the hearing room, but thanks to Representative

Robert Saunders, chair of the committee, the bill never came up for a vote. Saunders had originally co-sponsored the bill, but withdrew his support when he became concerned that it would harm Laguna Madre.

CMC's regional office in Austin mailed more than 4,000 action alerts to CMC members across the state, urging them to ask Governor Ann Richards to veto the bill if it passed the legislature, and we thank all of you who took the time to write Governor Richards and to fight one more coastal battle.

—Linda Maraniss

After 60 Years, Senator Still Fights for Texas Coast

Trying to protect the Texas coast from big business, high paid lobbyists, and even the Texas Senate is not an easy job. CMC's Gulf Coast States regional office in Austin worked recently to help defeat Senate bill 1094, which could have opened the door for subsidized development on South Padre Island near Laguna Madre, a fragile and highly productive ecosystem (see *Marine Conservation News*, Summer 1991 and article above).

In April, I testified against the bill before the Texas Senate Natural Resources Committee and watched with dismay as the committee voted to support it. I felt equally discouraged a few weeks later when the full Senate approved the bill.

When the bill was scheduled to be heard by the Environmental Affairs Committee of the Texas House, I wondered whether my testimony would make any difference, and whether I should even bother to attend the hearing. A phone call the day before the hearing inspired me to go, and to wait six hours to present my testimony.

The call came from former Texas Senator Ralph Yarborough, who, at age 87, is still practicing law and still fighting to protect the Texas coast. "Linda, we need you to come to the hearing tomorrow. I know



Ralph Yarborough is responsible for creating Padre Island National Seashore, and has fought hard to protect the Texas coast during his career. Photo: Linda Maraniss/CMC

you had a hard time with the Senate. You call your supporters, get them to come. Don't be discouraged," he said gently.

I had heard Yarborough speak at the Senate hearing, and was impressed as he boldly called S.B. 1094 "the most diabolically clever bill to take land and beach rights away from the People I have ever seen." Displaying a map of Padre Island, he spoke with passion about the natural beauty of the area and why it must remain protected.

Later, I visited him and his wife at their home in Austin, and learned more about the man who has worked for 60 years to protect the Texas coast.

In the early 1930s, while working as an assistant attorney general, Yarborough took a two-day fishing trip to Laguna Madre. He describes it as "the most wonderful fishing trip of my life." He remembers seeing the water thick with speckled trout and shrimp. In the 1950s, while campaigning unsuccessfully for governor, he flew by small plane across the state and was impressed by the beauty of the barrier islands and the Gulf of Mexico.

In 1957 he won a seat in the U.S. Senate, and set about to make Padre Island a National Seashore.

"I wanted to save this treasure. It took four years, hearing after hearing, and it was one of the hardest fights I had in the Senate." Congress finally established Padre Island National Seashore in 1962.

I asked Senator Yarborough if he liked being called an environmentalist. "I do consider myself an environmentalist and I'm not embarrassed with that. I'm trying to save part of this Earth before it is too late," he said with a smile. His smile will inspire me for years.

—Linda Maraniss

file - Japan

Speech made by The Hon. Kazuo Aichi
Minister of State, Director General of the Environment Agency
at the International Model United Nations on July 28, 1991

It is my great honor to have this opportunity to give an address, as an alum of the JC, rather than as Minister of State of Japanese Government, the Director General of the Environment Agency, at the International Model United Nations sponsored by JCI.

I celebrated my 54th birthday ten days ago, that is, I graduated JC 14 years ago. JC activities were the core of various activities in which I participated in my youth days. Today, after 14 years since my graduation, I am here to make a speech at the international model UN sponsored by the JCI. As I look back upon the past here, a thousand emotions crowd on my mind.

Mr. Chairman, I would like to show my great respect for the JC's accomplishment to realize this wonderful conference. I would also like to give special thanks to the members of the Japan JC who are here today as one of hosts.

Moreover, as the Director General of the Environment Agency, I thank you for choosing the issue of environmental problems as one of the three main topics for discussion.

I understand that JCI as an international organization for youth recognized the environmental problems as problems awaiting to be solved by the cooperation of all human being, independent of their homeland, culture, race and religion, and so, chose to discuss such problems, I earnestly respect your decision.

One and half months ago, I attended the Ministerial Conference of Developing Countries on Environmental and Development held in Beijing as an observer. Throughout this conference, which representatives of 41 developing countries attended, participants frankly discussed global environmental issues from the viewpoints of developing countries and concluded Beijing Declaration.

Moreover, I served as the chair of the environmental conference in Tokyo about three weeks ago. The purpose of the conference was to discuss environmental problems in Asia and the Pacific area, and more than 70 people, including the Environment Minister of each country in the region, attended the Conference. What summarizes the content of our discussion is Tokyo Declaration, and I hope you will take a look at the English version of the report from the conference which includes this declaration. At this conference, too, various honest opinions of developing countries in Asia and the Pacific area regarding environmental issues could be heard.

Through these two conferences, I could summarize the feeling of the developing countries as follows. They realize that the environmental problems of today were created mostly by the developed countries. To their eyes, the best solution to the problems is for the members of the developed countries to change their life style so as to eliminate the sources of the problems, and requests from the developed countries not accompanied by such a change are not welcomed. They also feel that developed countries should both financially and technologically aid developing countries so as to solve environmental problems in the developing areas.

To be honest with you, I consider their complaint understandable.

Under the present situation, I think that the developed countries are the ones that are to reinforce their attempt to better the environment in their regions.

The decrease of tropical rain forests has been the object of public attention as a world-scales environmental problem. While this is certainly a problem to be solved, I think that the fact that the destruction of forests by acid rain is advancing in developed countries and regions around them should deserve as much as or even more attention.

In the middle of June, I attended the Ministerial Conference on Environment for Europe held in Plague, Czechoslovakia. I then had a chance to inspect the forests along the German-Czech border in a suburb of Plague. I must tell you, the sight came upon me with an inexpressible shock. Of course, I had known of the severeness of the forest destruction caused by acid rain, but actually seeing it made me realize that the problem was more serious than is talked about.

What I understand about the mechanism of the forest destruction by acid rain is that acid rain damaged the soil and the soil in turn causes trees to wither. Therefore, it is not possible to recover the forests simply by planting new trees. Moreover, acid rain affects not only forests but lakes or rivers, and so it is the problem which affects the earth's environment as a whole.

It is known with certainty that the exhaustion of sulfur dioxide and nitrogen oxide due to the combustion of fossil fuel caused the acid rain. This means that the acid rain can be prevented if fuel gas de-sulfurization units and fuel gas de-nitroization units are to be used. According to statistics in 1989, total number of de-sulfurization units was 2,370 and out of them 1810 units or three fourth have been installed in Japan, 300 in the United States and 160 in German. I urge every industrialized country should make regulation which requires a factory of certain size to equip with fuel gas de-sulfurization units and fuel gas de-nitroization unit. To support these efforts, I would like to propose to strengthen international agreements and to establish a framework to make financial and technical support to Central and Eastern Europe or newly industrialized economies.

The mass consumption of fossil fuel is also related to the exhaustion of green house gas and poses a serious problem of the modern society.

Presently, 20% of the world population, that is, members of developed countries, are consuming 60% of the world's total oil or coal consumption. I think that members of the developed countries first of all must change their such life style to the environmentally-friendly one. Our present life style of mass-consumption and mass waste cannot be carried on by the entire humanity, 5.3 billions of people. Rather, it can already be seen that such life style is already at a deadlock in the developed countries.

Various heavy deficits the U.S. suffers are the evidence that the civilization which has been based on the cheap gasoline has its end in the sight.

Similar things can be said about the present life style of Japanese citizens, and Japan will face a deadlock in the near future if nothing to curb the current trend is done. When the nation is enjoying peace and nothing seems endangered, it is difficult to change one's life style. However, if various governments of the world do not make political decisions now, our earth will not last. Therefore, leaders in various areas must make every efforts in this respect. Moreover, the problem cannot be solved without the leadership of the U.S. which is a country that is responsible for 23% of the world's total carbon dioxides emission. I believe that there is nobody except for President Bush, with the strong backing of public opinion, who can play a leading role in solving the problem.

Members of the developing countries, too, must make best efforts to improve the situation, rather than just thrusting demands before the developed countries. Members of the developing countries constitute more than 80% of the total world population, and if they do not pay attention to the environment and simply attach importance to the development, the earth will be totally destructed.

I often hear the opinion that it is not yet the time to think about environmental problems, the development must be done first, I would like people of such opinion to learn from Japan's bitter experiences.

In the course of the post war rehabilitation, Japan frantically wrestled with economic expansion. As a result, it accomplished the high level of economic growth that finds a place in history. However, this growth was accompanied by public hazards and many citizens became victims. One of those typical cases is the notable "Minamata Disease". Although the nation and parties concerned have been working hard to give relief to these victims, the problem has not yet been completely solved. The cost which the nation as a whole has borne regarding this problem is unimaginably large.

Recently a research group of my agency released a report which took examples from pollution cases in our country, and compared to the costs of imposing countermeasures both before and after the occurrence of pollution. The result was clear: it is less costly to impose countermeasures before pollution is generated. I would like to ask the developing countries to learn these facts and take into their policies.

Furthermore, I would like to add the fact that Japan's experience testifies that environment and economic growth can co-exist. Twenty years ago, when our environmental problems became obvious, the Environment Agency was established to control environmental pollution and to regulate corporations and factories which had caused public hazards. There was strong resentment against the Agency among business leaders because they feared that if they followed the policies of the Agency, industries would decline and eventually Japan's economy would suffer from big losses. Therefore, the Agency had to go through hardships in those days to promote environmental countermeasures. However, Japanese corporations have accomplished splendid technical innovations in the process of difficult responses to the guideline of the Agency. As a result the quality of the product has improved as best in the world. As a result of this, Japanese economy has experienced excellent growth despite the original anxiety.

I would like members of the developing countries to be aware of this fact as well, and by referring to examples as such, make every effort possible. Members of the developed countries must support such self-assisting efforts in order to promote sustainable development. The solution to the environmental problems can be found only when both the developing countries and the developed countries cooperatively make efforts to solve the problems.

While Japan is one of the developed industrialized countries, it is the only country among G7 that belongs to Asia and it has the most unique cultural and historic backgrounds. Taking such into consideration, I cannot help but think that there must be a role that only Japan can play in solving environmental problems. Japan must take a responsibility to adjust the situation so as to prevent the South-North confrontation from occurring regarding environmental issues.

As a politician, I am willing to continue making efforts so that Japan can contribute to the world in this respect.

The Environment Agency of our country recently received a unique report. The report summarizes the discussions held over the past two years by knowledgeable people whom the Agency had asked to gather to express opinions with regard to the relationship between the environment and culture. The discussions were held on the assumption that in the core of environmental problems lie the cultural problems such as the life style of human beings. We have distributed the English version of the report to you, so please read it through some time.

To express in a word, the report calls for the need to establish the environment ethics. In other words, how mankind should live in their relation to the nature. The report proposes three guiding principles for environment ethics:

First, the report proposes humans should live in coexistence with the nature instead of trying to conquer the nature.

Second, it calls human to recognized the fact is that all living things on the earth live depending on one another, to learn the ethics and nature, and not to forget the fact that the humans part of the nature.

And thirdly, humans are to recognized that what the nature can provide is limited, that is, if people in certain areas try to monopolize benefits of nature, benefits which people in other areas receive will be reduce. In the same way, what future generations will be able to obtain will be lessened if people of today inconsiderately use up the resources.

These proposals call out to Japanese citizens to reconsider the propriety of the materialistic civilization Japan imported mainly from the U.S. after the World War II and build a new civilization based on Japan's traditional culture of humans living in co-existence with the nature, which had sustained the ten-thousand-year-long hunting and gathering civilization of the Jomon Period. To the Westerners, who had established the modern civilization and realized the Industrial Revolution as the conquest of the nature and further established the science and technology civilization, they call out to completely convert their conception. In any case, "Eco-Industrial Revolution" philosophy is based upon the trend to construct a new civilization in which we see the relationship between nature and humans through a new perspective. To make this trend on steady progress basis, Japan should take an initiative, and I believe Japanese qualified for this role as I look back our history and both of the background and status quo of the traditional culture. Of course, this is not the task that can be accomplished by Japan alone. The entire humanity must bring all the wisdom and knowledge together and make cooperative efforts. It may take many generations to accomplish this mission, but now what matters most is that we must start now. I earnestly hope that all of you who are here today will take an initiative in establishing an environmentally friendly civilization.

I expect that there will be active discussions regarding the method of cooperation between Developed Countries and Developing Countries throughout this conference. We must come up this a constructive system which promotes the cooperative efforts of both parties. Recently, programs such as the "Global Environment Facility or GEF" and "Debt for Nature Swap", that provide funds for environmental protection have come into operation. We must continue to make such efforts, and establish a productive system of cooperation by joint contribution of both parties. I hope a new cooperative system will be constructed at this conference.

In this respect, it may be helpful to refer to the "Tokyo Declaration" again. As I explained earlier, the "Tokyo Declaration" is a summary of the Asia Pacific Environment Conference held on July 4 and 5. The conference was representatives from 22 countries, including environmental ministers, members of parliament, executive officials of large cities, leaders of industrial circle, representatives of international organizations and the NGOs. These

were total of more than 300 people present at the conference including observers.

One of the characteristics of the Asia Pacific region is its diversity. The region includes both Developed Countries and Developing Countries, and cultural, religious, racial backgrounds of countries in the region are all diversified. It was extremely productive achievement for members of this diverse region to gather to discuss the problems of the global environment and express the decision to cooperate beyond the borders of countries in the form of the declaration. I do not have time to explain every detail of this declaration here, but let me point out a few things:

First, it declares that both industrialized and developing nations must share responsibilities to resolve global environmental problems.

Second, it calls for the need to change social and economic structures and lifestyles to ones more environmentally sound and to incorporate a structure of environmental ethics into the decision making process.

Thirdly, it calls for the transfer of technology, the establishment of a funding mechanism, and the promotion of regional cooperation as three pillars for the new structure for international cooperation.

I hope each of these will be discussed throughout this conference.

I would also like to call your attention to Section 8 of Chapter 1, which discusses the role of young people. To quote from the declaration: "The energy and vision of youth will play an essential role in enabling humanity to meet the environmental challenges facing the next generation. Therefore, governments, businesses and other organizations should promote means by which young people can work to preserve and protect their environmental heritage."

This I leave as a challenge to all assembled here. It is my great desire that you will offer your talents and vigor to the preservation of our mother earth.

With this, I would like to close my remarks.

Thank you for your attention.

Elements to be included in the Climate Change Framework
Convention regarding CO2 Emission Control
(Private Idea)

1. Principles and General Obligations

Principles

- Each country has common but differing responsibilities with regard to measures on global warming.
- For example, differing responsibilities may be categorized by stages of economic development.
 - Industrialized countries (OECD countries)
 - Economies under transition (USSR, Eastern Europe)
 - Developing countries (NEIS, LDC, or other sub categories)

General Obligations

- Each country is obligated to make efforts to achieve the long term goals indicated in the declaration of the Second World Climate Conference.
- Each country is obligated to take immediate actions toward the prevention of global warming. For this purpose, each country is to formulate a National Response Strategy.

2. Target for Emission Control

- Industrialized Countries should attempt to stabilize CO2 emission, for example, by the year 2000 at the level of 1990.
- Developing countries should take whatever possible measures to limit CO2 emission.
- Economies under transition should

3. Mechanism to ensure the Achievement of Target (Pledge and Review Method)

(1) Formulation and submission of National Response Strategy by party

- Each party should submit a National Response Strategy toward the prevention of global warming to the Reviewing Committee, which is to be stipulated in the convention, within a certain period after the convention comes into effective.
- A Nation Response Strategy should include, among others, the target and the specific measures toward the prevention of global warming for approximately the next 20 years, according to the guidelines to be adopted by the parties.

(2) Review and approval of National Response Strategy

- The Reviewing Committee should review National Response Strategies submitted by parties and report the results of review to the Party Meeting. The Committee may add comments to the reports if necessary.
- The Party Meeting approves National Response Strategies. The Party Meeting may make recommendations, if necessary.

(3) Implementation Report of National Response Strategy

- Each party should periodically submit a implementation report on National Response Strategy to the Reviewing Committee (for example, every five years).
- The Reviewing Committee should review the implementation reports submitted by parties and report the results to the Party Meeting. The Committee may add comments to the reports if necessary.
- The Party Meeting approves the implementation reports. The Party Meeting may make recommendations, if necessary.

(4) Respect for recommendations

- Each party should seriously consider the recommendations added to the National Response Strategy or the implementation report, and make necessary adjustments to the National Response Strategy and the measures to be taken in the future.
- Each party should faithfully implement the National Response Strategy approved at the Party Meeting.

(5) Violations of Obligation

- Each party may file a complaint to the Reviewing Committee, when the party recognizes the negligence or violation of the National Response Strategy by other parties.
- The Reviewing Committee may examine the implementation of a National Response Strategy and submit a report of examination to the Party Meeting upon a reception of a complaint.
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- The Party Meeting may consider the report and, if necessary, take appropriate actions.

To: al
from: katie
re: dinner with aichi Climate Observers Meeting

In the event that you can make this --- wanted to let you know who was going to attend the dinner (list attached -- i have put a * next to those you are scheduled to sit with) and to alert you to some developments in Japan on pledge and review.

There has been alot of bad press in the Japanese newspapers on the pledge and review proposal. So much so that the LDP held hearings on this in the last several weeks. A battle royal seems to be brewing between MITI and the Environment Ministry on whether, in proposing pledge and review, they intended to back away from calling for targets and timetables. The question is whether p&r is an end in itself OR simply a process for achieving the targets that would still be called for. MITI, of course is of the former opinion; Aichi is of the latter. Please see the letter that I have attached from the Environment Agency to the State Dep't in which they emphasize that "it should never be misunderstood that the process was proposed with the intention to avoid setting international targets of limiting CO2 emissions." They say further that the point of Aichi's visit -- like that of Heseltine -- is to "persuade those concerned in the U.S. to adopt a more adequate policy on climate change, in particular, commitments on greenhouse gas emissions in line with EC countries and Japan."

You will want to ask Aichi who he has met with in the Administration and what their reaction was to his message. Further, you should ask him if he speaks in his personal capacity or for the government -- the track record is if MITI and Env't battle, MITI's word is the order of the day.

Enjoy!

I also have attached a page from Bob Reinokiu's testimony on Tues before EPW. He indicates that Japan Now only supports voluntary targets that each country would set for itself. You should Ask Mr. Aichi if this is Accurate

The U.S. advocated a partnership among sovereign states to facilitate such cooperation. We recognized that technology transfer to developing countries and to countries with economies in transition on a priority basis must be a central aspect of this cooperative effort. Financial resources to support this effort should, in our view, make maximum use of existing bilateral and multilateral institutions and should be integrated in such a way that support for general development purposes is in no way diminished.

Most industrialized countries except the U.S. favored some form of targets and timetables. Some favored the developing country view that only industrialized countries should be obliged to take action now, whereas the U.S. and others stressed the need for global action in keeping with diverse national circumstances. Many expressed support for a Japanese proposal for each country to set its own target for action under a system of "pledge and review." This approach was generally supported by the U.K., France and, on the final day, by the EC. Industrialized countries were divided on whether to support calls for "new and additional" financial resources for developing countries or to support a less specific call for "adequate" resources, which several countries suggested should be provided through the World Bank's Global Environmental Facility (GEF).



Appreciating the wide diversity of views on commitments,

ENVIRONMENT AGENCY

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Mr. Daniel Reifsnyder
Director
Office of Global Change
OES/EGC, Room 4329-A
Department of State
Washington D.C. 20520
USA

29 July 1991

Dear Mr. Daniel Reifsnyder

As you may know, we formulated the "Action Program to Arrest Global Warming" in October last year, in which we clearly defined the targets for stabilizing CO2 emissions in the year 2000 and beyond at about the same level as in 1990. This is our commitments on greenhouse gas emissions.

In this regard, I would like to to make clear the Japanese position on the "pledge and review process", just to avoid any possible misunderstanding on Japanese position. Mr. Kazuo Aichi, the Minister of State and the Director-General of the Environment Agency of Japan has just sent a letter to Mr. Michael Heseltine, the Secretary of State for the Environment of the United Kingdom. In his letter, Mr. Aichi emphasized that we made a proposal on so called "Pledge and Review" process, as a possible mechanism to implement commitments defined on the basis of the Climate Convention, and that it should never be misunderstood that the process was proposed with the intention to avoid setting international targets of limiting CO2 emissions. My Minister Aichi also referred to his trip to the United States from 29 July to 4 August 1991, and stressed his intention to persuade those concerned in the U.S. to adopt a more adequate policy on climate change, in particular, commitments on greenhouse gas emissions, in line with EC countries and Japan.

Finally, I hope we continue to work closely for the success of the negotiation for the framework convention on climate change.

Sincerely yours,

112 44 2 29

Saburo Kato
Director-General
Global Environment Department

Senator Brucus held a hearing this week at which Reinstein said the Japanese J & R does not include mandatory targets & timetables -- ~~sa.~~ rather, Reinstein said Japan would only work each country voluntarily to set its own target.

- You should ask him to clarify
- You should ~~ask~~ ask Brucus

Policies and Projects in FY 1991

Concerning

"ACTION PROGRAM

TO ARREST GLOBAL WARMING"

JUNE 14, 1991

GOVERNMENT OF JAPAN

(Tentative Translation)



C O N T E N T S

I. MEASURES TO LIMIT CARBON DIOXIDE EMISSION

1. Formation of urban and regional structure with low CO₂ emission
 - (1) Moderation of urban climate by vegetation
 - (2) Promotion of energy-efficient buildings and houses
 - (3) Promotion of co-generation systems
 - (4) Utilization of wasted urban heat
 - (5) Utilization of unused energy available from incinerators of refuse and sewage sludge
 - (6) Others
2. Formation of transport systems with low CO₂ emissions
 - (1) Improvement of energy efficiency of motor vehicles
 - (2) Development and implementation of application technologies of pollution-free vehicles such as electric vehicles
 - (3) Modal-shift and improvement of trucking efficiency
 - (4) Promotion of use of public mass transit systems
 - (5) Promotion of road improvement and development of advanced traffic control systems
3. Formation of production structure with low CO₂ emissions
 - (1) Manufacturing industry
 - (2) Agriculture, forestry and fisheries
4. formation of energy supply structure with low CO₂ emissions
 - (1) Power generation
 - (2) Use of LNG for city gas
 - (3) Leveling of electric power loads and promotion of gas fired absorption air conditioning systems
5. Realization of life style with low CO₂ emissions
 - (1) Promotion of recycling
 - (2) Review of packaging
 - (3) Promotion of ECOMARK system and GREEN MARK system

II. MEASURES TO REDUCE EMISSION OF METHANE AND GREENHOUSE GASES

- (1) Waste disposal measures
- (2) Measures for energy use for production purposes
- (3) Rigorous enforcement of emission control of motor vehicles and stationary sources for the reduction of NO_x

III. MEASURES TO ENHANCE CO₂ SINK (FOREST AND OTHER GREENS)

1. Adequate management of domestic forests and greens in urban areas

- (1) Appropriate management of forests
- (2) Conservation and development of vegetation in and around urban areas
- 2. Rational use of timber resources
 - (1) Promotion of appropriate tropical timber trade
 - (2) Effective use of timber resources

IV. PROMOTION OF RESEARCH AND OBSERVATION/MONITORING

- 1. Research and Survey
 - (1) Clarification of the mechanism and future forecast forecasting technology
 - (2) Assessment of effects
 - (3) Planning and evaluation of measures
 - (4) Comprehensive study of global warming with emphasis on Asia Pacific Region
- 2. Observation/Monitoring
 - (1) Observation and monitoring
 - (2) Development of techniques for observation and monitoring
 - (3) Distribution of observation and monitoring data

V. DEVELOPMENT AND DISSEMINATION OF TECHNOLOGY

- 1. Technologies for limiting the emission of greenhouse gases
 - (1) Development of technologies for the development and use of energy
 - (2) Technology development for the utilization of unused energy and for the improvement of energy efficiency
 - (3) Development of technologies for the recycling of wastes
 - (4) Others
- 2. Technologies for absorption, fixation, etc., of greenhouse gases

VI. PROMOTION OF PUBLIC AWARENESS

- [1] Promotion of public awareness through publicity activities
- [2] School education
- [3] National campaign to promote natural resources and energy conservation and promote greening

VII. PROMOTION OF INTERNATIONAL COOPERATION

- [1] Comprehensive support for technology transfer for arresting global warming
- [2] Promotion of technology transfer to arresting global warming
- [3] Support to conservation and development of tropical forests and other sinks of carbon dioxide
- [4] Promotion of cooperation in research and the development of appropriate technology

VIII. PROMOTION OF THE ACTION PROGRAM

IX. OTHERS

This is a comprehensive list of policies and projects planned by government agencies for 1991 in accordance with the "Action Program to Arrest Global Warming" decided by the "Council of Ministers for Global Environment Conservation" on December 23, 1990.

< > indicates responsible Ministry or Agency as follows.

NPA : National Police Agency
HDA : Hokkaido Development Agency
EPA : Economic Planning Agency
STA : Science and Technology Agency
EA : Environment Agency
NLA : National Land Agency
MFA : Ministry of Foreign Affairs
MOF : Ministry of Finance
MOE : Ministry of Education
MITW : Ministry of Health and Welfare
MAFF : Ministry of Agriculture, Forestry and Fisheries
MITI : Ministry of International Trade and Industry
MOT : Ministry of Transport
MPT : Ministry of Posts and Telecommunications
MOL : Ministry of Labor
MOC : Ministry of Construction
MLA : Ministry of Home Affairs

I. MEASURES TO LIMIT CARBON DIOXIDE EMISSIONS

1. Formation of urban and regional structure with low CO₂ emissions

[1] Moderation of urban climate by vegetation

- (1) Development of national government parks, urban parks and other greenery zones ... <MOC>
- (2) Vegetation of roads and government buildings ... <MOC>
- (3) Construction and transfer of common welfare facilities (green buffer zones) and air pollution control green lung zones by the Environmental Pollution Control Service Corporation ... <EA, MOC>
- (4) Promotion of vegetation through the Pollution-Related Health Damages Compensation and Prevention Association's Fund. ... <EA>
- (5) Efficient supply of revegetation trees to meet demand ... <MAFF>

[2] Promotion of energy-efficient buildings and houses

- (1) Review of and amendments to the energy-efficiency standard for judgment for buildings in accordance with the "Law concerning the Rational Use of Energy"
 - + Amendment of energy-efficiency standard for judgment for residential houses ... <MITI, MOC>
 - + Establishment of energy-efficiency standard for judgment for hotels ... <MITI, MOC>
- (2) Tax incentives for the installation of heat pump, floor heating system and solar system, etc ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI, MOC>
- (3) Loans to the projects for the construction of solar systems

and energy-saving building equipments by Japan Development Bank and other public financial institutions ... <MITI, MOC>

- (4) Housing Loan Corporation's loans with subsidized low-interest rate to housing equipped with heat insulation and solar energy system ... <MOC>
- (5) Interest subsidies to installation of solar systems by the Solar System Development Association ... <MITI>
- (6) Subsidies to the designated public facilities for the installation of solar systems ... <MITI>
- (7) Improvement of energy efficiency of government offices ... <MOC>
- (8) Research and development of environmentally symbiotic housing ... <MOC>
- (9) Development of total energy economy system for housing ... <MITI>

[3] Promotion of co-generation systems

- (1) Loans by Japan Development Bank for the installation of co-generation systems ... <MITI>
- (2) Tax incentives for the installation of co-generation systems ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (3) Development of environmentally friendly co-generation systems, fuel cell systems, etc. ... <MITI>

[4] Utilization of wasted urban heat

- (1) Subsidies to district heating and cooling
 - + Subsidies to district heating and cooling for waste heat recovery ... <MITI>
 - + Subsidies to the design of district heating and cooling on the New Urban Core Development Project
- (4 sites) ... <MOC>
- (2) Loans to district heating and cooling
 - + Loans by Japan Development Bank and other public financial institutions to district heating and cooling for recovery of waste heat ... <MITI, MOC>
 - + Loans by Japan Development Bank, Environmental Pollution Control Service Corporation, etc. to the construction of district heating and cooling ... <EA, MITI>
- (3) Tax incentives for district heating and cooling ("Special taxation measures for certain equipments responding " to the change of energy and environment circumstances) ... <MITI>
- (4) Subsidies to technology development for district heating and cooling for waste heat recovery ... <MITI>

[5] Utilization of unused energy available from incinerators of refuse and sewage sludge

- (1) Promotion of the utilization of incinerator waste heat in the form of heat supply and power generation, etc. ... <MITI>

- (2) Loans by Japan Development Bank, Environmental Pollution Control Service Corporation, etc. to equipment utilizing waste heat ... <EA, MITI, MOC>
- (3) Tax incentives to the installation of waste heat recovery boilers, etc. ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (4) Technology development for industrial wastes energy recovery systems and industrial waste-fired power generation systems ... <MITI>
- (5) Promotion of energy conservation for sewage treatment plants by effective use of sewage sludge and power generation from digestion gas ... <MOC>
- (6) Review of energy-efficiency standard for judgment of plants in accordance with the "Law concerning the Rational Use of Energy" ... <MITI>

[6] Others

- + Subsidies to the planning and engineering design of energy-efficient systems on the Urban Management Promotion Model Project ... <MOC>

2. Formation of transport systems with low CO₂ emissions

[1] Improvement of energy efficiency of motor vehicles

- (1) Review of fuel consumption efficiency standard for judgment for motor vehicles in accordance with the "Law concerning the Rational Use of Energy" ... <MITI, MOT>
- (2) Tax incentives for rollingstock speed controllers, marine diesel engines and high-performance forklifts, etc. ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI, MOT>
- (3) Technology development for the improvement of energy efficiency of shipping by rail and sea ... <MOT>

[2] Development and implementation of application technologies of pollution-free vehicles such as electric vehicle

- (1) Subsidies to local governments for the introduction of electric vehicles ... <EA>
- (2) Fund raising by local allocation tax and local bonds for introduction of electric vehicles and other low-pollution motor vehicles by local public entities ... <MITI>
- (3) Subsidies from the Pollution-Related Health Damages Compensation and Prevention Association's Fund to business operators introducing electric vehicles and other low-emission vehicles ... <EA>
- (4) Introduction of low-pollution motor vehicles by postal services ... <MPT>
- (5) Tax incentives relating to Motor Vehicle Tax, Mini-Sized Vehicle Tax and Motor Vehicle Acquisition Tax for users of electric Vehicle ... <EA>
- (6) Tax incentives relating to Motor Vehicle Tax and Motor Vehicle Acquisition Tax for users of methanol-fueled Vehicles ... <EA, MOT>

- (7) Development of battery exchange type vehicles and battery exchanger systems ... <MITI>
- (8) Subsidies to the demonstration of diesel-electric hybrid bus ... <MOT>

[3] Modal-shift and improvement of trucking efficiency

(1) Incentives for modal shift

- + Tax incentives for containers owned by freight forwarders for rail transportation and trucks suitable for piggyback rail transportation ("Modal Shift Promotion Taxation") ... <MOT>
- + Initiation of model project for promotion of modal-shift ... <MOT>

(2) Infrastructural development for the promotion of modal-shift

- + Interest-free loans from the Railway Development Fund to Japan Railway Construction Public Corporation for the buildup of trunk freight transportation lines ... <MOT>
- + Flexible administration of adjusting rules of shipbuilding ... <MOT>
- + Development of ports and harbors to meet the increasing demand for domestic consolidated cargo (unit loads) transportation ... <MOT>

(3) Improvement of trucking efficiency

- + Development of common transportation network systems ... <MOT>
- + Initiation of model project for the promotion of common transportation ... <MOT>

(4) Development and rationalization of physical distribution centers

- + Loans by the Japan Development Bank and other financial institutions to the development and improvement of physical distribution centers ... <MOT>
- + Construction and transfer of highly-equipped physical distribution centers by the Environmental Pollution Control Service Corporation ... <EA>
- + Development of common transportation and distribution facilities under the financial aids from the the Pollution-Related Health Damage Compensation and Prevention Association's Fund ... <EA>
- + Development of urban physical distribution complex (3 sites) ... <MOC>
- + Initiation of model project for the improvement of efficiency of physical distribution centers ... <MOT>

[4] Promotion of use of public mass transit systems

- (1) Development of arterial railroads and urban mass transit systems ... <MOT>
- (2) Development of systems for invigoration of bus business ... <MOT>
- (3) Development of urban monorail systems and new transport systems ... <MOC>

[5] Promotion of road improvement and development of advanced traffic control systems

- (1) Development and improvement of roads to ensure smooth, efficient traffic flow ... <MOC>
- (2) Improvement of the performance and functions of traffic control centers and traffic signaling systems to ensure streamlined flow of traffic ... <NPA>

3. Formation of production structure with low CO₂ emissions

[1] Manufacturing industry

- (1) Extension of loans by the Japan Development Bank and other financial institutions to investment in energy-conservation facilities ... <MITI>
- (2) Tax incentives to energy-conservation facilities ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (3) Technology development for direct coal use iron-making processes (direct iron-ore smelting reduction process), entrained flows coal gasification combined cycle plants, etc. ... <MITI>

[2] Agriculture, forestry and fisheries

- (1) Subsidies to the construction of model farming complex introducing a automated horticultural system that can totally control growth environmental factors for vegetables, etc. ... <MAFF>
- (2) Construction of model floricultural complex using highly advanced horticultural systems ... <MAFF>
- (3) Tax incentives to the installation of solar heat tank systems for horticultural systems ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MAFF>

4. Formation of energy supply structure with low CO₂ emissions

[1] Power generation

- (1) Promotion of the development and utilization of nuclear energy with assuring safety ... <STA, MITI>
- (2) Government subsidies and New Energy Foundation's interest subsidies to local energy projects harnessing solar photovoltaic power system projects, geothermal power plant projects and refuse utilization power system projects ... <MITI>
- (3) Japan Development Bank's loans to the combined cycle power generation and fuel cells ... <MITI>
- (4) Tax incentives to photovoltaic power generation, wind power generation, hydroelectric power generation, geothermal power generation, fuel cells, combined cycle generation turbines, etc. ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (5) Tax incentives to photovoltaic power generation, wind power generation, hydroelectric power generation, geothermal power generation, etc. ("Local Energy Utilization Promotion Taxation") ... <MITI>
- (6) Technology development for combined cycle power generation, high-efficiency coal-fired thermal power generation, distributed

power generation such as fuel cells and solar cells,
high-efficiency incineration power generation, and
mini-hydroelectric power generation ... <MITI>

[2] Use of LNG for city gas

- (1) Extension of loans by the Japan Development Bank and other financial institutions for the promotion of LNG for local city gas supply, industrial LNG supply, and for the construction of LNG carriers ... <MITI, MOT>
- (2) Tax incentives to the local introduction of LNG supply facilities ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (3) Government support to the local city gas utilities for the introduction of LNG facilities ... <MITI>

[3] Leveling of electric power loads and promotion of gasfired absorption air conditioning systems

- (1) Extension of loans by the Japan Development Bank and other financial institutions for the promotion of gas-fired air conditioning systems ... <MITI>
- (2) Interest subsidies for gas heat pumps ... <MITI>
- (3) Tax incentives to load shifting and valley filling systems (Electricity, Gas) ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (4) Development of centralized electric load control system ... <MITI>

5. Realization of life style with low CO₂ emissions

[1] Promotion of recycling

- (1) Enforcement of the "Law for the Promotion of Utilization of Recycled Resources" ... <EA, MOF, MITI, MAFF, MOT, MOC>
- (2) Encouragement and support to industry and consumers to promote recycling ... <EA, MAFF, MITI>
- (3) Promotion of the recycling of waste paper ... <EA, MITI>
 - + Encouragement of the use of recycled paper in postal services ... <MPT>
 - + Promotion of the collection of waste paper and use of recycled paper within the government agencies ... <each ministries and agencies>
 - + Implementation of projects for the amplification and diversification of recycled paper and for the development of recycled paper applications ... <MITI>
- (4) Implementation of projects for development of systems that will help promote the reduction, segregated disposal and recycling of combustibles and incombustibles and other domestic wastes ... <MITI>

[2] Review of packaging

- (1) Encouragement of producers, distributors, retailers and consumers for promotion of proper packaging ... <MAFF, MITI>
- (2) Government campaign for elimination of superfluous packaging ... <EA>

- [3] Promotion of ECOMARK system and GREEN MARK system ... <EA, MITI>

II. MEASURES TO REDUCE EMISSION OF METHANE AND GREENHOUSE GASES

+ Measures against methane

[1] Waste disposal measures

- (1) Total incineration of combustible wastes
 - + Subsidies to incineration plants for improvement of combustion efficiency ... <MITI>
- (2) Recycling and reuse of industrial wastes
 - + Extension of loans by the Japan Development Bank, Environmental Pollution Control Service Corporation, etc. for the construction of facilities intended for the recycling and reuse of sewage sludge, wood-working industry waste, waste lumber, etc. ... <EA, MITI>
 - + Reduction of volume of industrial waste brought into the landfill site by the promotion of intermediate processing and reuse of sludge, wooden waste, and other industrial wastes ... <MITI>
 - + Reduction of the volume of debris accompanied by construction work, promotion of reuse of debris, and promotion of recycled materials in the public works ... <MOC>

[2] Measures for energy use for production purposes

- + Promotion of safety regulations for gas works ... <MITI>

- [3] Rigorous enforcement of emission control of motor vehicles and stationary sources for the reduction of NOx ... <EA>

III. MEASURES TO ENHANCE CO₂ SINK (FORESTS AND OTHER GREENS)

1. Adequate management of domestic forest and greens in urban area

[1] Appropriate Management of forests

- (1) Systematic conservation of forests, and sustainable management of forest
 - + Periodical review of National and Quasi-national Park Planning, and promotion of proper management nature conservation areas and natural parks, etc. ... <EA>
 - + Preparation of manuals for the formulation of guidelines for the conservation and development of CO₂ sink ... <EA>
 - + Management of forest reserves for watershed management purposes, proper management of remedial erosion control projects, conservation of water resources and forests ... <MAFF>

- + Proper administration of licensing system for forest removal ... <MAFF>
- + Promotion of forest management uniting national and non-national forest based on river basin as a unit ... <MAFF>
- + Proper management and conservation of national forests ... <MAFF>
- (2) Improvement of management level of forests, and promotion of improvement of various types of forests and sustainable management
 - + Promotion of prolonged harvest-cycle forest treatment, multi-storied forest treatment, natural forest treatment with necessary tending, and promotion of thinning ... <MAFF>
 - + Promotion of pest control ... <MAFF>
 - + Development of forest roads and other infrastructure for forestry for the purpose of ensuring proper management of forests ... <MAFF>
 - + Development and introduction of highly-efficient forestry machinery, training of forest workers, introduction of seasoning facilities, development of systems for stable supply of domestic wood ... <MAFF>
 - + Improvement of tree breeding, and stable production and supply of various seedlings ... <MAFF>
 - + Amplification of loans by Agriculture Forestry and Fisheries Finance Corporation and other financial institutions to forestry ... <MAFF>
- (3) Citizens-led promotion of forest conservation
 - + Promotion of national trust movements (Japanese Style) ... <EA>
 - + Institution of "National-Fund for Forests Greenery and Waters" ... <MAFF>
 - + Promotion of voluntary forest management by owners and local community ... <MAFF>
 - + Promotion of profit afforestation system ... <MAFF>
- (4) Promotion of measures against acid rain
 - + Monitoring of the impact of acid rain on forests, and development of techniques for the protection of forests ... <MAFF>
 - + Promotion of acid rain monitoring system throughout the country ... <EA>
 - + Tax incentives to internal combustion engines meeting the latest emission control guidelines ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
 - + Tax incentives for the promotion of gas desulfurization and denitration facilities ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>

[2] Conservation and Creation of Greens in and around Urban Areas

- (1) Promotion of vegetation of public facilities, industrial plants and other places
 - + Construction and transfer of common welfare facilities (green buffer zones) and air pollution control green lung

- zones by the Environmental Pollution Control Service Corporation ... <EA, MOC>
- + Promotion of vegetation under the financial aids of the Pollution-Caused Health Damages Compensation Liability Protection Association's Fund ... <EA>
- + Development of green area more than a specified ratio in accordance with the "Factory Location Law" ... <MITI>
- (2) Promotion of the integrated approaches for the development and conservation of urban afforestation
 - + Development of national government parks, urban parks and other greenery zones ... <MOC>
 - + Vegetation of roads and government buildings ... <MOC>
 - + Promotion of the conservation of trees in preservation of green zones in suburban areas of the National Capitol Region and Kinki Region, and green space conservation zones ... <MOC>
 - + Development of vegetation promotion model districts and city-scape development model project, and development of green-leaved botanical gardens for the systematic afforestation of entire regions ... <MOC>
 - + Development of efficient supply system to meet demand for green-leaved trees ... <MAFF>

2. Rational use of timber resources

[1] Promotion of appropriate tropical timber trade

- (1) Contribution to ITTO activities ... <MFA, MAFF>
- (2) Monitoring of tropical trade ... <MAFF>

[2] Efficient use of timber resources

- (1) Promotion of comprehensive programs for the efficient use of timber resources, including thinnings
 - + Promotion of the introduction of highperformance equipment for sawmills and plywood mills, rationalization of production processes, reduction of production cost ... <MAFF>
 - + Collection, analysis and distribution of information for stabilization of demand and supply of prices of wood products ... <MAFF>
 - + Promotion of the efficient use of timbers produced by thinnings and mill processing waste, development of new application technologies ... <MAFF>
- (2) Promotion of the rationalized use of plywood concrete shuttering in the construction industry ... <MOC>

IV. PROMOTION OF RESEARCH AND OBSERVATION/MONITORING

1. Research and Survey

[1] Clarification of mechanism and future forecast

(1) Study on the mechanism of global warming and forecasting technology

- a. Study on the effect of clouds on the global warming
 - + Observational study of clouds on global warming ... <STA>
- b. Study on the effect of ocean on the global warming
 - + Joint research in the Western Pacific Ocean (WESTPAC) ... <MOT>
 - + Projects of inter-governmental oceanological committee (IOC) ... <MOE>
 - + North Pacific / Arctic Oceans study ... <STA>
 - + International joint study for the elucidation of the oceanic circulation and integrated observation system ... <STA>*
 - + International joint study on the effects of changes in atmospheric and oceanic changes in the Pacific on the global climate ... <STA>*
 - + Study on the exploitation and utilization of the Black Current (Kuroshio) ... <STA>
 - + Evaluation of the circulation and fixation of carbon in the ocean ... <EA, MITI>
- c. Study for the elucidation of the effects of snow and ice on the global warming
 - + Joint study on the effect of the arctic zone on the global environment ... <MOE>
 - + Antarctic zone observational study ... <MOE>
 - + International joint study on the changes of atmosphere, hydrosphere and biosphere of the arctic zone and their interactions ... <STA>
 - + Study on the evaluation of the feedback effect of the global warming on the permafrost in Siberia ... <EA, MAFF>
- d. Study on the elucidation of the effects of ecological system on the global warming
 - + Man and biosphere planning project (MAB) ... <MOE>
 - + Clarification of carbon cycling processes in the terrestrial ecosystem ... <EA, MAFF>
 - + Research programme on the changes of tropical forests and their influences ... <STA>
- e. Paleoclimatological study, and other studies
 - + International joint study for the elucidation of the mechanism of desertification ... <STA>*

Note: Study themes marked with an asterisk are financed from Special Coordination Funds for Promoting Science and Technology which is used in accordance with the guideline decided by the Council for Science and Technology.

(2) Study for the refinement of climatological models

- + International joint study program concerning Sun-Earth system energy (STEP) ... <MOE>

- + International joint study program concerning climatological changes (World Climate Research Program, WCRP) ... <MOE>
 - + Japan-China joint research program concerning the terrestrial and atmospheric interactions in the Heilong Jiang river basin (HEIFE) ... <MOE>
 - + Measures concerning climate issues ... <MOT>
 - + Study for the upgrading of the global warming predicting technology ... <MOT>
 - + Study on the assessment of climate changes using climate models ... <EA, MITI, MOT>
 - + Precise evaluation of greenhouse effect of methane, nitrous oxide, and other gases ... <MOT>
 - + Studies on the mechanism of climate changes due to global warming and their effects ... <STA>
- (3) Studies concerning the production and absorption of greenhouse gases
- + Study on the behavior of green house gases and aerosols ... <STA>
 - + Clarification of the sources and emission of methane and nitrous oxides ... <EA, MIHW, MAFF, MITI, MOT, MOC>
 - + Evaluation of temporal and spatial variability of greenhouse gases ... <EA, MITI>
 - + Clarification of the atmospheric chemistry of greenhouse gases and related compounds ... <EA, MITI>
- [2] Assessment of effects
- (1) Study on the effects of global warming on the ecosystem
- + Study for the dynamic analysis of agricultural, forestry and fishery ecosystems in relation to global warming and for the development of forecasting technology ... <MAFF>
 - + Evaluation of the global warming effects on plants ... <EA, MAFF>
- (2) Study on the effects of global warming on health
- + Evaluation of the effects and the risks of global warming on human health ... <EA, MIHW>
- (3) Study on the effects of global warming on water resources
- + International hydrological program (IHP) ... <MOE>
 - + Basic study on the changes in the water supply-demand conditions due to global climate changes ... <NLA>
 - + Assessment of the global warming effects on the water balance ... <IIDA, MOC>
 - + Influence study of sea level rises, changes in runoff characteristics, acid rains, temperature rise, hydrology, water quality, etc. ... <MOC>
- (4) Study on the socio-economic impacts of global warming
- + Studies on the effects of global warming on climate changes ... <STA>
 - + Study on the disaster forecast in the global hydrological process ... <STA>

- + Assessment of global warming effects on urban environment, and its countermeasures ... <EA>
- + Review of industrial and economic policies for the preservation of Earth's environment ... <EPA>
- (5) Studies on the effects of global warming on the coastal areas
 - + Study on the effects of sea level rises on the socio-economic activities in the coastal areas ... <MOT>
 - + Clarification of effects of sea level rise caused by global warming ... <EA, MITI, MOT, MPT, MOC>
 - + Basic survey of the coastal areas ... <MOC>
 - + Influence study of sea level rises, changes in runoff characteristics, acid rains, temperature rise, hydrology, water quality, etc. ... <MOC>
- [3] Planning and evaluation of measures
 - (1) Studies on the methodology for the assessment of global warming measures
 - + Evaluation of measures to cope with global warming ... <EA, MIW, MAFF, MITI, MOC>
 - + Study of assessment technologies for global warming measures ... <EA>
 - (2) Studies for the development of environmentally friendly social systems
 - + Study for the formulation of regional model program for the promotion of global warming measures ... <EA>
 - + Study for the development of efficient physical distribution system ... <MOT>
 - + Study for carbon dioxide emission control systems that can be implemented on a household basis ... <EA, MOC>
 - + Study for the promotion of electric cars for a new transport system that can minimize carbon dioxide emissions ... <EA, MITI, MOT>
 - (3) Studies for the planning and assessment of measures
 - + Survey for global environment preservation measures ... <EA>
 - + Study for the CO₂ recycling capability preservation and development programs ... <EA>
 - + Promotion of planning for global warming measures ... <EA>
 - + Processing and analysis of basic data concerning greenhouse gas emission control measures ... <EA>
 - + Study of livestock farming technologies concerning global warming ... <MAFF>
 - + Projects for the establishment of soil and fertilizer application management technologies to improve the environmental functions ... <MAFF>
 - + Experimental farming by slow-release fertilizer ... <MAFF>
 - + Commissioned survey for the establishment of agriculture for the improvement of environmental protection capability ... <MAFF>
 - + Study for measures against global warming (sea level rise) ... <MAFF>

- + Study for motor vehicle CO₂ emission control measures and establishment of new mileage standards for the purpose of global environment protection measures ... <MOT>
- + Measures concerning climate issues ... <MOT>
- + Study for the promotion of transport energy measures to contribute toward controlling the global warming ... <MOT>
- + Study for the harnessing of untapped energy resources in the littoral areas ... <MOT>
- + Effects of Turbulent flow in the workshop on the flow into the hood ... <MOL>
- + Study concerning on global environmental problems ... <MOC>
- + Study on the harnessing of untapped energy resources ... <MOC>
- + Study on the effective use of sewage as a source of energy and materials ... <MOC>
- + Study on the effect of the streamlining of traffic flow on the mitigation of global warming ... <NPA>
- + Review of industrial and economic policies for the protection of Earth's environment ... <EPA>

(4) Comprehensive study on global warming with emphasis on Asia Pacific Region

- + Study on global environmental changes with center on Asia Pacific Region ... <MOE>
- + Study on the development of global warming measures analysis model for Asia Pacific Region (AIM) ... <EA, MAFF>
- + Study on the mechanism of Asia monsoon ... <STA>

2. Observation/Monitoring

[1] Observation and monitoring

(1) Fact-finding survey of global warming phenomena

- + Meteorological and oceanographic observation by satellites (meteorological conditions, sea surface temperature, etc.) ... <MOT>
- + Climatological observation (temperature, atmospheric pressure, humidity, precipitation, solar radiation, etc.) ... <MOT>

(2) Observation and monitoring for the tempo-spatial distribution study of greenhouse gases

- + Monitoring by Global Environment Research Center ... <EA>
- + Observation of background air pollution ... <MOT>
- + Observation of oceanographic background pollution ... <MOT>
- + Observation by meteorological rockets ... <MOT>

(3) Observation concerning sea level changes due to global warming

- + Oceanographic leveling ... <MOC>
- + Observation and monitoring of Mean Sea Level (variation) ... <MOT>

[2] Development of techniques for observation and monitoring

(1) Studies for the development and use of satellites

- + Studies on development of new laser radar techniques ... <EA, MPT>
- + Production of observational research equipment to be carried aboard satellite ... <EA>
- + Development of greenhouse gas sensor system ... <MITI>
- + Study for the development of multi-functional transport satellite system ... <MOT>
- + Study on the two-frequency Doppler radar for extraterrestrial observation of precipitation ... <MPT>
- + Development of Earth observatory platform engineering satellite ... <STA>
- + Study for the development of satellite for the observation of tropical rain forests ... <STA>
- + Study on the remote sensing technology for observation of earth's environment ... <STA>
- + Earth observation program ... <STA>
- + Promotion of integrated use of Earth observation data ... <STA>
- + Study on the development of data base for analytical method of satellite data ... <STA>

(2) Development of technologies for analysis of solar exosphere and for the measurement of trace gases

- + Study on the earth's environment measuring technology using short millimeter band radio wave ... <MPT>
- + Research and development of space weather forecast system ... <MPT>
- + Research and development of earth's environment measuring technology using optically active sensor ... <MPT>

(3) Development of observational technologies for oceanographic changes

- + Research and development of ocean observation technology ... <STA>

(4) Monitoring of Earth's environment

- + Monitoring by Earth Environment Research Center ... <EA>

[3] Distribution of observation and monitoring data

(1) Development and networking of earth observation data base

- + Development of earth observation data network and directory data base ... <STA>
- + Promotion of integrated use of earth observation data ... <STA>
- + Multilateral cooperation through WMO ... <MOT>

(2) Development of measurement and information network technology

- + Research and development concerning Earth's environment measurement and information networking ... <MPT>
- + Development study concerning the use of radio wave and information communication for the protection of Earth's environment ... <MPT>
- (3) Geographic information system development project for the wide-area environmental protection in developing countries ... <MOC>
- (4) Data service by the Centers
 - + Earth Environment Research Center ... <EA>
 - + Administration of Japan Oceanographic Data Center ... <MOT>
 - + World Data Center for Greenhouse Gases ... <MOT>

V. DEVELOPMENT AND DISSEMINATION OF TECHNOLOGY

1. Technologies for limiting emission of greenhouse gases

[1] Development of technologies for the development and use of energy

- (1) Technology for development and utilization of nuclear energy maintaining the highest available standards of safety ... <STA, MITI>
- (2) Technology development for the promotion of the introduction of natural gas ... <MITI>
- (3) Facilitation of development and introduction of new and renewable energy sources such as solar energy, wind energy, and geothermal energy
 - + Research and development of new energy sources ... <MOE>
 - + Promotion of development and introduction of new and renewable energy sources ... <MITI>
 - + Development of a wave power extracting caisson breakwater ... <MOT>
 - + Study on the development and use of local energy sources such as geothermal energy ... <HDA>
- (4) Others
 - + Evaluation of new technologies for methanol-fueled cars, forecast and assessment of positive and negative effects of their introduction ... <MOT>

[2] Technology development for the utilization of unused energy and for the improvement of energy efficiency

(1) Development of production technologies that can minimize CO₂ emissions

- + Comprehensive studies for the development of harnessing technologies of biological functions to create new demands ... <MAFF>
- + Development of biodegradable plastics and other materials that can minimize the environmental loads ... <MITI>
- + Development of environmentally sound production processes such as bioreactors ... <MITI>
- + Development of new environmentally sound metals, and of environmentally sound recycling technologies ... <MITI>

- + Development of microbial hydrogen production technology ... <MITI>
- + Encouragement of industry's efforts to develop technologies that will minimize loads on global environment ... <MITI>

(2) Development of energy-conservation technologies

- + Improvement of energy efficiency ... <MITI>
- + R & D on new technologies for planning and construction of sustainable society ... <MOC>

[3] Development of technologies for the recycling of wastes

- + Development of technologies for the reduction of carbon dioxide emissions from waste incineration ... <MITW>
- + Study for the development of wide-area waste incineration energy recovery technologies and systems ... <MITW>
- + Development of technologies for the processing of greenhouse gases at the dump sites and for early stabilization of landfills ... <MITW>
- + Energy conversion promotion program at incineration plants ... <MITW>

[4] Others

- + Study on the methane production mechanism in the humid tropical farms, and development of methane production control technology ... <MAFF>

2. Technologies for absorption, fixation, etc., of greenhouse gases

- + Development of technologies for the fixation and utilization of carbon dioxides by making use of microorganisms, algae, hydrogen, etc. ... <MITI>
- + Research and development of CO₂ fixation technologies based on artificial photosynthesis, etc. ... <MITI>
- + Development of basic technics to create spaces for flowers and greens ... <MOC>
- + Photosynthetic sciences ... <STA>
- + Development of radiological technology for the processing of stack gases ... <STA>
- + Analytical study of rice genome ... <MAFF>
- + Development of water resources and irrigation methods for the prevention and control of desertification of irrigated farmland ... <MAFF>

VI. PROMOTION OF PUBLIC AWARENESS

[1] Promotion of public awareness through publicity activities

- (1) Promotion of public awareness through the distribution of pamphlets, dissemination of results of investigation and research, TV broadcasting, holding of lecture meetings and symposium, and the issue of

- commemorative stamps ... <each ministry and agency>
- (2) Promotion of public awareness through various events in the "Environment Month" ... <EA>
 - (3) Promotion of public awareness through various activities supported by the Regional Environmental Preservation Fund of prefectural public organizations ... <EA>
 - (4) Subsidies to experimental courses in environmental protection (comprehensive project for social education activities) of cities, towns, and villages ... <MOE>
- [2] School education Preparation of materials for teaching environment education in primary schools and the holding of symposiums on environmental education and research conferences particularly for teachers ... <MOE>
- [3] National campaign to promote natural resources and energy conservation and promote greening
- (1) Heightening of awareness concerning the importance of energy conservation through "Energy Conservation Month" and "The Day of Thorough Examination of Energy Conservation" ... <EPA, MITI, MOC>
 - (2) Promotion of greening through development of a greening philosophy and a spirit fond of forestry through "Reinforcement of National Greening Week" and "Green Day" ... <MAFF>
 - (3) Diffusion of and education in greening of the city through "Activities that Promote Greening of the City during Spring" and "City Greening Monthly" ... <MOC>

VII. PROMOTION OF INTERNATIONAL COOPERATION

- [1] Comprehensive support for technology transfer for arresting global warming
- (1) Joint financing through contributions and yen loans to the Global Environment Facility (GEF) of the World Bank to support the efforts of developing countries toward global environmental problems ... <EPA, MFA, MOF, MITI>
 - (2) Promotion and supporting of countermeasures against global-warming in the Asia Pacific Region (e.g. supporting country specific study in Indonesia) ... <EA>
 - (3) Supporting of formulation of energy strategies in developing countries by the Institute of Developing Economies ... <MITI>
 - (4) Holding of international seminar on monitoring of Mean Sea Level variation in Asian and Oceanian region ... <MOT>
 - (5) Supporting for the improvement of the meteorological observation and monitoring system in developing countries ... <MOT>
- [2] Promotion of technology transfer to arrest global warming
- (1) Promotion of investigation for materializing the UNEP International Environment Technology Centre ... <EA, MFA>
 - (2) Contributions to UNIDO for the preparation of manuals on energy

- conservation for developing countries ... <MITI>
- (3) Implementation of environmental preservation technical research projects by The Association for Overseas Technical Scholarship (AOTS) and the International Center for Environmental Technology Transfer (ICETT) ... <MITI>
- [3] Support to conservation and development of tropical forests and other sinks of carbon dioxide
 - (1) Supporting of ITTO and international promotion of the Tropical Forest Action Program (TFAP)
 - + Contributions to ITTO ... <MFA, MAFF>
 - + Contribution of expenses necessary for TFAP to FAO ... <MFA, MAFF>
 - (2) Carrying out of project-type technical cooperation ... <MFA>
 - (3) Materialization of the global consensus on forests such as "Forest Charter" proposed by Japan ... <EA, MFA, MAFF>
 - (4) Conduct of the "Conference of Senior Foresters" which aims at conservation and sustainable management of tropical forests ... <MAFF>
 - (5) Support for the improvement of productivity of existing farmlands to minimize the reduction of tropical forests that stem from the burning of fields such as reclaimed land ... <MAFF>
 - (6) Fostering of personnel for the cooperation in sustainable management of tropical forests through the Japan International Forestry Promotion & Cooperation Center (JIFPRO) ... <MAFF>
 - (7) Development, analysis, and provision of satellite data by the Tropical Forest Control Information Center ... <MAFF>
 - (8) Promotion of cooperation in investigation for the resolution of such industrial pollution problems as air pollution in developing countries by Japan International Cooperation Agency ... <MITI>
 - (9) Preparation of a master plan by the Industrial Pollution Control Association of Japan for preventing industrial pollution in the Asia Pacific Region ... <MITI>
 - (10) Promotion of transfer of pollution prevention technology by the Japan-China Friendship Preservation Center ... <EA, MFA, MITI>
 - (11) Supporting of formulation of an action program for each region for the prevention of desertification ... <MAFF>
- [4] Promotion of cooperation in research and the development of appropriate technology
 - (1) Promotion of international cooperation in research at such national institutes as the National Environment Institute and the Research Institute of Innovative Technology for the Earth (RITE) ... <each ministry and agency>
 - (2) Construction of an international network by artificial satellite data ... <STA>
 - (3) Development and improvement of technology that preserves and forms mangrove trees and tropical forests ... <MAFF>
 - (4) Development of technology restoring forests in the areas threatened to desertification ... <MAFF>

- (5) Development of water-retaining substances in dry areas ... <MITI>
- (6) Development and utilizing promotion of the simplified desulfurizing process for coal firing boiler to preserve forests ... <MITI>

VIII. PROMOTION OF THE ACTION PROGRAM

- + Supporting of establishment of a model program for the promotion of countermeasures against global warming at the regional level (5 prefectures and designated cities) ... <EA>

IX. OTHERS

- + Examples of measures under consideration for the development of the "New Earth 21" (see appendix)

Notes:

1. Besides the above, various measures are being studied for the materialization of the action program. Nevertheless, those that are being studied and researched were omitted from this document.
2. Some items overlap due to arrangement.
3. The order of the ministries and agencies was according to order of control.

(APPENDIX)

Examples of Measures Under Consideration for the Development of the "New Earth 21"

<STA, EA, MFA, MOE, MHW, MAFF, MITI, MOT, MPT, MOC>

Examples of measures under consideration at each ministry and agency in order to develop an comprehensive and long-term vision ("New Earth 21") in regard to consolidation of the scientific basis, promotion of energy and resource conservation, introduction of clean energy, development of innovative environmental technologies, expansion of sinks of greenhouse gases, and development of future generation energy-related technologies through the cooperation of each country of the world in a long-term perspective, are the following.

[1] Consolidation of the scientific basis

- (1) Research and development of observation technology including the ADvanced Earth Observing Satellite (ADEOS)
- (2) Investigation and research for unraveling the mechanism of global warming
- (3) Climate prediction by coupled atmosphere-ocean models
- (4) Research concerning the forecast of effects resulting from changes in the water balance due to global warming and rise in the sea level

[2] Promotion of energy and resource conservation

- (1) Development and introduction of energy conservation technology and promotion of transfer of such technology to developing countries
- (2) Research and development on new technologies for planning and construction of sustainable society the energy- and natural resource-conservation type national construction technology
- (3) Development of an environment-preserving traffic system
- (4) International cooperation in waste disposal for the prevention of global warming including the use of excess heat from incineration, such as power generation using refuse, and the promotion of recycling of waste

[3] Introduction of clean energy

- (1) Promotion of the development and utilization of nuclear energy maintaining the highest available standards of safety
- (2) Development and introduction of new and renewable energy technologies such as solar and wind energy, geothermal energy, and biomass, and promotion of transfer of such technology to developing countries
- (3) Introduction of such low-emission vehicles as electric vehicles
- (4) Development of a wave power extracting caisson breakwater

[4] Development of innovative environmental technologies

+ Development of technology for fixation and utilization of carbon dioxide

[5] Expansion of sinks of greenhouse gases through afforestation and preservation of tropical forests

- (1) Cooperation by providing financial aid for the improvement of capacity of preservation of forests of developing countries

- (2) Clarification of regions to be afforested in developing countries and the supporting of promotion of long-term afforestation
 - (3) Development and improvement of technology that preserves and forms tropical forests and the transfer of such technology to developing countries
 - (4) Technical development of technology that restores forests for the prevention of desertification, water source development, and brackish water method
 - (5) Enhancement of the absorbing capacity of carbon dioxide through the improvement of conservation forests in domestic forests from an international standpoint, long-term deforestation, and multi-layer deforestation
- [6] Development of future generation energy-related technologies
- + Research on solar power generation system

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*****
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United States Senate

pl. file 4/2/92



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Mr. Daniel Reifsnyder
Director
Office of Global Change
OES/EGC, Room 4329-A
Department of State
Washington D.C. 20520
USA

29 July 1991

Dear Mr. Daniel Reifsnyder

As you may know, we formulated the "Action Program to Arrest Global Warming" in October last year, in which we clearly defined the targets for stabilizing CO2 emissions in the year 2000 and beyond at about the same level as in 1990. This is our commitments on greenhouse gas emissions.

In this regard, I would like to to make clear the Japanese position on the "pledge and review process", just to avoid any possible misunderstanding on Japanese position. Mr. Kazuo Aichi, the Minister of State and the Director-General of the Environment Agency of Japan has just sent a letter to Mr. Michael Heseltine, the Secretary of State for the Environment of the United Kingdom. In his letter, Mr. Aichi emphasized that we made a proposal on so called "Pledge and Review" process, as a possible mechanism to implement commitments defined on the basis of the Climate Convention, and that it should never be misunderstood that the process was proposed with the intention to avoid setting international targets of limiting CO2 emissions. My Minister Aichi also referred to his trip to the United States from 29 July to 4 August 1991, and stressed his intention to persuade those concerned in the U.S. to adopt a more adequate policy on climate change, in particular, commitments on greenhouse gas emissions, in line with EC countries and Japan.

Finally, I hope we continue to work closely for the success of the negotiation for the framework convention on climate change.

Sincerely yours,

112 44 2 27
Saburo Kato
Director-General
Global Environment Department

pls file w/ Japan

Policies and Projects in FY 1991

Concerning

"ACTION PROGRAM

TO ARREST GLOBAL WARMING"

JUNE 14, 1991

GOVERNMENT OF JAPAN

(Tentative Translation)



Printed on Recycled Paper

C O N T E N T S

I. MEASURES TO LIMIT CARBON DIOXIDE EMISSION

1. Formation of urban and regional structure with low CO₂ emission
 - (1) Moderation of urban climate by vegetation
 - (2) Promotion of energy-efficient buildings and houses
 - (3) Promotion of co-generation systems
 - (4) Utilization of wasted urban heat
 - (5) Utilization of unused energy available from incinerators of refuse and sewage sludge
 - (6) Others
2. Formation of transport systems with low CO₂ emissions
 - (1) Improvement of energy efficiency of motor vehicles
 - (2) Development and implementation of application technologies of pollution-free vehicles such as electric vehicles
 - (3) Modal-shift and improvement of trucking efficiency
 - (4) Promotion of use of public mass transit systems
 - (5) Promotion of road improvement and development of advanced traffic control systems
3. Formation of production structure with low CO₂ emissions
 - (1) Manufacturing industry
 - (2) Agriculture, forestry and fisheries
4. formation of energy supply structure with low CO₂ emissions
 - (1) Power generation
 - (2) Use of LNG for city gas
 - (3) Leveling of electric power loads and promotion of gas fired absorption air conditioning systems
5. Realization of life style with low CO₂ emissions
 - (1) Promotion of recycling
 - (2) Review of packaging
 - (3) Promotion of ECOMARK system and GREEN MARK system

II. MEASURES TO REDUCE EMISSION OF METHANE AND GREENHOUSE GASES

- (1) Waste disposal measures
- (2) Measures for energy use for production purposes
- (3) Rigorous enforcement of emission control of motor vehicles and stationary sources for the reduction of NO_x

III. MEASURES TO ENHANCE CO₂ SINK (FOREST AND OTHER GREENS)

1. Adequate management of domestic forests and greens in urban areas

- (1) Appropriate management of forests
 - (2) Conservation and development of vegetation in and around urban areas
- 2. Rational use of timber resources
 - (1) Promotion of appropriate tropical timber trade
 - (2) Effective use of timber resources
- IV. PROMOTION OF RESEARCH AND OBSERVATION/MONITORING
 - 1. Research and Survey
 - (1) Clarification of the mechanism and future forecast forecasting technology
 - (2) Assessment of effects
 - (3) Planning and evaluation of measures
 - (4) Comprehensive study of global warming with emphasis on Asia Pacific Region
 - 2. Observation/Monitoring
 - (1) Observation and monitoring
 - (2) Development of techniques for observation and monitoring
 - (3) Distribution of observation and monitoring data
- V. DEVELOPMENT AND DISSEMINATION OF TECHNOLOGY
 - 1. Technologies for limiting the emission of greenhouse gases
 - (1) Development of technologies for the development and use of energy
 - (2) Technology development for the utilization of unused energy and for the improvement of energy efficiency
 - (3) Development of technologies for the recycling of wastes
 - (4) Others
 - 2. Technologies for absorption, fixation, etc., of greenhouse gases
- VI. PROMOTION OF PUBLIC AWARENESS
 - [1] Promotion of public awareness through publicity activities
 - [2] School education
 - [3] National campaign to promote natural resources and energy conservation and promote greening
- VII. PROMOTION OF INTERNATIONAL COOPERATION
 - [1] Comprehensive support for technology transfer for arresting global warming
 - [2] Promotion of technology transfer to arresting global warming
 - [3] Support to conservation and development of tropical forests and other sinks of carbon dioxide
 - [4] Promotion of cooperation in research and the development of appropriate technology
- VIII. PROMOTION OF THE ACTION PROGRAM
- IX. OTHERS

This is a comprehensive list of policies and projects planned by government agencies for 1991 in accordance with the "Action Program to Arrest Global Warming" decided by the "Council of Ministers for Global Environment Conservation" on December 23, 1990.

< > indicates responsible Ministry or Agency as follows.

NPA : National Police Agency
HDA : Hokkaido Development Agency
EPA : Economic Planning Agency
STA : Science and Technology Agency
EA : Environment Agency
NLA : National Land Agency
MFA : Ministry of Foreign Affairs
MOF : Ministry of Finance
MOE : Ministry of Education
MITW : Ministry of Health and Welfare
MAFF : Ministry of Agriculture, Forestry and Fisheries
MITI : Ministry of International Trade and Industry
MOT : Ministry of Transport
MPT : Ministry of Posts and Telecommunications
MOL : Ministry of Labor
MOC : Ministry of Construction
MHA : Ministry of Home Affairs

I. MEASURES TO LIMIT CARBON DIOXIDE EMISSIONS

1. Formation of urban and regional structure with low CO₂ emissions

[1] Moderation of urban climate by vegetation

- (1) Development of national government parks, urban parks and other greenery zones ... <MOC>
- (2) Vegetation of roads and government buildings ... <MOC>
- (3) Construction and transfer of common welfare facilities (green buffer zones) and air pollution control green lung zones by the Environmental Pollution Control Service Corporation ... <EA, MOC>
- (4) Promotion of vegetation through the Pollution-Related Health Damages Compensation and Prevention Association's Fund. ... <EA>
- (5) Efficient supply of revegetation trees to meet demand ... <MAFF>

[2] Promotion of energy-efficient buildings and houses

- (1) Review of and amendments to the energy-efficiency standard for judgment for buildings in accordance with the "Law concerning the Rational Use of Energy"
 - + Amendment of energy-efficiency standard for judgment for residential houses ... <MITI, MOC>
 - + Establishment of energy-efficiency standard for judgment for hotels ... <MITI, MOC>
- (2) Tax incentives for the installation of heat pump, floor heating system and solar system, etc ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI, MOC>
- (3) Loans to the projects for the construction of solar systems

and energy-saving building equipments by Japan Development Bank and other public financial institutions ... <MITI, MOC>

- (4) Housing Loan Corporation's loans with subsidized low-interest rate to housing equipped with heat insulation and solar energy system ... <MOC>
- (5) Interest subsidies to installation of solar systems by the Solar System Development Association ... <MITI>
- (6) Subsidies to the designated public facilities for the installation of solar systems ... <MITI>
- (7) Improvement of energy efficiency of government offices ... <MOC>
- (8) Research and development of environmentally symbiotic housing ... <MOC>
- (9) Development of total energy economy system for housing ... <MITI>

[3] Promotion of co-generation systems

- (1) Loans by Japan Development Bank for the installation of co-generation systems ... <MITI>
- (2) Tax incentives for the installation of co-generation systems ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (3) Development of environmentally friendly co-generation systems, fuel cell systems, etc. ... <MITI>

[4] Utilization of wasted urban heat

- (1) Subsidies to district heating and cooling
 - + Subsidies to district heating and cooling for waste heat recovery ... <MITI>
 - + Subsidies to the design of district heating and cooling on the New Urban Core Development Project
- (4 sites) ... <MOC>
- (2) Loans to district heating and cooling
 - + Loans by Japan Development Bank and other public financial institutions to district heating and cooling for recovery of waste heat ... <MITI, MOC>
 - + Loans by Japan Development Bank, Environmental Pollution Control Service Corporation, etc. to the construction of district heating and cooling ... <EA, MITI>
- (3) Tax incentives for district heating and cooling ("Special taxation measures for certain equipments responding " to the change of energy and environment circumstances) ... <MITI>
- (4) Subsidies to technology development for district heating and cooling for waste heat recovery ... <MITI>

[5] Utilization of unused energy available from incinerators of refuse and sewage sludge

- (1) Promotion of the utilization of incinerator waste heat in the form of heat supply and power generation, etc. ... <MITI>

- (2) Loans by Japan Development Bank, Environmental Pollution Control Service Corporation, etc. to equipment utilizing waste heat ... <EA, MITI, MOC>
- (3) Tax incentives to the installation of waste heat recovery boilers, etc. ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (4) Technology development for industrial wastes energy recovery systems and industrial waste-fired power generation systems ... <MITI>
- (5) Promotion of energy conservation for sewage treatment plants by effective use of sewage sludge and power generation from digestion gas ... <MOC>
- (6) Review of energy-efficiency standard for judgment of plants in accordance with the "Law concerning the Rational Use of Energy" ... <MITI>

[6] Others

- * Subsidies to the planning and engineering design of energy-efficient systems on the Urban Management Promotion Model Project ... <MOC>

2. Formation of transport systems with low CO₂ emissions

[1] Improvement of energy efficiency of motor vehicles

- (1) Review of fuel consumption efficiency standard for judgment for motor vehicles in accordance with the "Law concerning the Rational Use of Energy" ... <MITI, MOT>
- (2) Tax incentives for rollingstock speed controllers, marine diesel engines and high-performance forklifts, etc. ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI, MOT>
- (3) Technology development for the improvement of energy efficiency of shipping by rail and sea ... <MOT>

[2] Development and implementation of application technologies of pollution-free vehicles such as electric vehicle

- (1) Subsidies to local governments for the introduction of electric vehicles ... <EA>
- (2) Fund raising by local allocation tax and local bonds for introduction of electric vehicles and other low-pollution motor vehicles by local public entities ... <MLIA>
- (3) Subsidies from the Pollution-Related Health Damages Compensation and Prevention Association's Fund to business operators introducing electric vehicles and other low-emission vehicles ... <EA>
- (4) Introduction of low-pollution motor vehicles by postal services ... <MPT>
- (5) Tax incentives relating to Motor Vehicle Tax, Mini-Sized Vehicle Tax and Motor Vehicle Acquisition Tax for users of electric Vehicle ... <EA>
- (6) Tax incentives relating to Motor Vehicle Tax and Motor Vehicle Acquisition Tax for users of methanol-fueled Vehicles ... <EA, MOT>

- (7) Development of battery exchange type vehicles and battery exchanger systems ... <MITI>
- (8) Subsidies to the demonstration of diesel-electric hybrid bus ... <MOT>

[3] Modal-shift and improvement of trucking efficiency

(1) Incentives for modal shift

- + Tax incentives for containers owned by freight forwarders for rail transportation and trucks suitable for piggyback rail transportation ("Modal Shift Promotion Taxation") ... <MOT>
- + Initiation of model project for promotion of modal-shift ... <MOT>

(2) Infrastructural development for the promotion of modal-shift

- + Interest-free loans from the Railway Development Fund to Japan Railway Construction Public Corporation for the buildup of trunk freight transportation lines ... <MOT>
- + Flexible administration of adjusting rules of shipbuilding ... <MOT>
- + Development of ports and harbors to meet the increasing demand for domestic consolidated cargo (unit loads) transportation ... <MOT>

(3) Improvement of trucking efficiency

- + Development of common transportation network systems ... <MOT>
- + Initiation of model project for the promotion of common transportation ... <MOT>

(4) Development and rationalization of physical distribution centers

- + Loans by the Japan Development Bank and other financial institutions to the development and improvement of physical distribution centers ... <MOT>
- + Construction and transfer of highly-equipped physical distribution centers by the Environmental Pollution Control Service Corporation ... <EA>
- + Development of common transportation and distribution facilities under the financial aids from the the Pollution-Related Health Damage Compensation and Prevention Association's Fund ... <EA>
- + Development of urban physical distribution complex (3 sites) ... <MOC>
- + Initiation of model project for the improvement of efficiency of physical distribution centers ... <MOT>

[4] Promotion of use of public mass transit systems

- (1) Development of arterial railroads and urban mass transit systems ... <MOT>
- (2) Development of systems for invigoration of bus business ... <MOT>
- (3) Development of urban monorail systems and new transport systems ... <MOC>

[5] Promotion of road improvement and development of advanced traffic control systems

- (1) Development and improvement of roads to ensure smooth, efficient traffic flow ... <MOC>
- (2) Improvement of the performance and functions of traffic control centers and traffic signaling systems to ensure streamlined flow of traffic ... <NPA>

3. Formation of production structure with low CO₂ emissions

[1] Manufacturing industry

- (1) Extension of loans by the Japan Development Bank and other financial institutions to investment in energy-conservation facilities ... <MITI>
- (2) Tax incentives to energy-conservation facilities ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (3) Technology development for direct coal use iron-making processes (direct iron-ore smelting reduction process), entrained flows coal gasification combined cycle plants, etc. ... <MITI>

[2] Agriculture, forestry and fisheries

- (1) Subsidies to the construction of model farming complex introducing a automated horticultural system that can totally control growth environmental factors for vegetables, etc. ... <MAFF>
- (2) Construction of model floricultural complex using highly advanced horticultural systems ... <MAFF>
- (3) Tax incentives to the installation of solar heat tank systems for horticultural systems ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MAFF>

4. Formation of energy supply structure with low CO₂ emissions

[1] Power generation

- (1) Promotion of the development and utilization of nuclear energy with assuring safety ... <STA, MITI>
- (2) Government subsidies and New Energy Foundation's interest subsidies to local energy projects harnessing solar photovoltaic power system projects, geothermal power plant projects and refuse utilization power system projects ... <MITI>
- (3) Japan Development Bank's loans to the combined cycle power generation and fuel cells ... <MITI>
- (4) Tax incentives to photovoltaic power generation, wind power generation, hydroelectric power generation, geothermal power generation, fuel cells, combined cycle generation turbines, etc. ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (5) Tax incentives to photovoltaic power generation, wind power generation, hydroelectric power generation, geothermal power generation, etc. ("Local Energy Utilization Promotion Taxation") ... <MITI>
- (6) Technology development for combined cycle power generation, high-efficiency coal-fired thermal power generation, distributed

power generation such as fuel cells and solar cells,
high-efficiency incineration power generation, and
mini-hydroelectric power generation ... <MITI>

[2] Use of LNG for city gas

- (1) Extension of loans by the Japan Development Bank and other financial institutions for the promotion of LNG for local city gas supply, industrial LNG supply, and for the construction of LNG carriers ... <MITI, MOT>
- (2) Tax incentives to the local introduction of LNG supply facilities ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (3) Government support to the local city gas utilities for the introduction of LNG facilities ... <MITI>

[3] Leveling of electric power loads and promotion of gasfired absorption air conditioning systems

- (1) Extension of loans by the Japan Development Bank and other financial institutions for the promotion of gas-fired air conditioning systems ... <MITI>
- (2) Interest subsidies for gas heat pumps ... <MITI>
- (3) Tax incentives to load shifting and valley filling systems (Electricity, Gas) ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
- (4) Development of centralized electric load control system ... <MITI>

5. Realization of life style with low CO₂ emissions

[1] Promotion of recycling

- (1) Enforcement of the "Law for the Promotion of Utilization of Recycled Resources" ... <EA, MOF, MITW, MAFF, MITI, MOT, MOC>
- (2) Encouragement and support to industry and consumers to promote recycling ... <EA, MAFF, MITI>
- (3) Promotion of the recycling of waste paper ... <EA, MITI>
 - + Encouragement of the use of recycled paper in postal services ... <MPT>
 - + Promotion of the collection of waste paper and use of recycled paper within the government agencies ... <each ministries and agencies>
 - + Implementation of projects for the amplification and diversification of recycled paper and for the development of recycled paper applications ... <MITI>
- (4) Implementation of projects for development of systems that will help promote the reduction, segregated disposal and recycling of combustibles and incombustibles and other domestic wastes ... <MITW>

[2] Review of packaging

- (1) Encouragement of producers, distributors, retailers and consumers for promotion of proper packaging ... <MAFF, MITI>
- (2) Government campaign for elimination of superfluous packaging ... <EA>

- [3] Promotion of ECOMARK system and GREEN MARK system ... <EA, MITI>

II. MEASURES TO REDUCE EMISSION OF METHANE AND GREENHOUSE CASES

- + Measures against methane

- [1] Waste disposal measures
 - (1) Total incineration of combustible wastes
 - + Subsidies to incineration plants for improvement of combustion efficiency ... <MIHW>
 - (2) Recycling and reuse of industrial wastes
 - + Extension of loans by the Japan Development Bank, Environmental Pollution Control Service Corporation, etc. for the construction of facilities intended for the recycling and reuse of sewage sludge, wood-working industry waste, waste lumber, etc. ... <EA, MITI>
 - + Reduction of volume of industrial waste brought into the landfill site by the promotion of intermediate processing and reuse of sludge, wooden waste, and other industrial wastes ... <MIHW>
 - + Reduction of the volume of debris accompanied by construction work, promotion of reuse of debris, and promotion of recycled materials in the public works ... <MOC>

- [2] Measures for energy use for production purposes
 - + Promotion of safety regulations for gas works ... <MITI>

- [3] Rigorous enforcement of emission control of motor vehicles and stationary sources for the reduction of NOx ... <EA>

III. MEASURES TO ENHANCE CO₂ SINK (FORESTS AND OTHER GREENS)

1. Adequate management of domestic forest and greens in urban area

- [1] Appropriate Management of forests
 - (1) Systematic conservation of forests, and sustainable management of forest
 - + Periodical review of National and Quasi-national Park Planning, and promotion of proper management nature conservation areas and natural parks, etc. ... <EA>
 - + Preparation of manuals for the formulation of guidelines for the conservation and development of CO₂ sink ... <EA>
 - + Management of forest reserves for watershed management purposes, proper management of remedial erosion control projects, conservation of water resources and forests ... <MAFF>

- + Proper administration of licensing system for forest removal ... <MAFF>
- + Promotion of forest management uniting national and non-national forest based on river basin as a unit ... <MAFF>
- + Proper management and conservation of national forests ... <MAFF>
- (2) Improvement of management level of forests, and promotion of improvement of various types of forests and sustainable management
 - + Promotion of prolonged harvest-cycle forest treatment, multi-storied forest treatment, natural forest treatment with necessary tending, and promotion of thinning ... <MAFF>
 - + Promotion of pest control ... <MAFF>
 - + Development of forest roads and other infrastructure for forestry for the purpose of ensuring proper management of forests ... <MAFF>
 - + Development and introduction of highly-efficient forestry machinery, training of forest workers, introduction of seasoning facilities, development of systems for stable supply of domestic wood ... <MAFF>
 - + Improvement of tree breeding, and stable production and supply of various seedlings ... <MAFF>
 - + Amplification of loans by Agriculture Forestry and Fisheries Finance Corporation and other financial institutions to forestry ... <MAFF>
- (3) Citizens-led promotion of forest conservation
 - + Promotion of national trust movements (Japanese Style) ... <EA>
 - + Institution of "National-Fund for Forests Greenery and Waters" ... <MAFF>
 - + Promotion of voluntary forest management by owners and local community ... <MAFF>
 - + Promotion of profit afforestation system ... <MAFF>
- (4) Promotion of measures against acid rain
 - + Monitoring of the impact of acid rain on forests, and development of techniques for the protection of forests ... <MAFF>
 - + Promotion of acid rain monitoring system throughout the country ... <EA>
 - + Tax incentives to internal combustion engines meeting the latest emission control guidelines ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>
 - + Tax incentives for the promotion of gas desulfurization and denitration facilities ("Special taxation measures for certain equipments responding to the change of energy and environment circumstances") ... <MITI>

[2] Conservation and Creation of Greens in and around Urban Areas

- (1) Promotion of vegetation of public facilities, industrial plants and other places
 - + Construction and transfer of common welfare facilities (green buffer zones) and air pollution control green lung

- zones by the Environmental Pollution Control Service Corporation ... <EA, MOC>
- + Promotion of vegetation under the financial aids of the Pollution-Caused Health Damages Compensation Liability Protection Association's Fund ... <EA>
- + Development of green area more than a specified ratio in accordance with the "Factory Location Law" ... <MITI>
- (2) Promotion of the integrated approaches for the development and conservation of urban afforestation
 - + Development of national government parks, urban parks and other greenery zones ... <MOC>
 - + Vegetation of roads and government buildings ... <MOC>
 - + Promotion of the conservation of trees in preservation of green zones in suburban areas of the National Capitol Region and Kinki Region, and green space conservation zones ... <MOC>
 - + Development of vegetation promotion model districts and city-scape development model project, and development of green-leaved botanical gardens for the systematic afforestation of entire regions ... <MOC>
 - + Development of efficient supply system to meet demand for green-leaved trees ... <MAFF>

2. Rational use of timber resources

[1] Promotion of appropriate tropical timber trade

- (1) Contribution to ITTO activities ... <MFA, MAFF>
- (2) Monitoring of tropical trade ... <MAFF>

[2] Efficient use of timber resources

- (1) Promotion of comprehensive programs for the efficient use of timber resources, including thinnings
 - + Promotion of the introduction of highperformance equipment for sawmills and plywood mills, rationalization of production processes, reduction of production cost ... <MAFF>
 - + Collection, analysis and distribution of information for stabilization of demand and supply of prices of wood products ... <MAFF>
 - + Promotion of the efficient use of timbers produced by thinnings and mill processing waste, development of new application technologies ... <MAFF>
- (2) Promotion of the rationalized use of plywood concrete shuttering in the construction industry ... <MOC>

IV. PROMOTION OF RESEARCH AND OBSERVATION/MONITORING

1. Research and Survey

[1] Clarification of mechanism and future forecast

(1) Study on the mechanism of global warming and forecasting technology

- a. Study on the effect of clouds on the global warming
 - + Observational study of clouds on global warming ... <STA>
- b. Study on the effect of ocean on the global warming
 - + Joint research in the Western Pacific Ocean (WESTPAC) ... <MOT>
 - + Projects of inter-governmental oceanological committee (IOC) ... <MOE>
 - + North Pacific / Arctic Oceans study ... <STA>
 - + International joint study for the elucidation of the oceanic circulation and integrated observation system ... <STA>*
 - + International joint study on the effects of changes in atmospheric and oceanic changes in the Pacific on the global climate ... <STA>*
 - + Study on the exploitation and utilization of the Black Current (Kuroshio) ... <STA>
 - + Evaluation of the circulation and fixation of carbon in the ocean ... <EA, MITI>
- c. Study for the elucidation of the effects of snow and ice on the global warming
 - + Joint study on the effect of the arctic zone on the global environment ... <MOE>
 - + Antarctic zone observational study ... <MOE>
 - + International joint study on the changes of atmosphere, hydrosphere and biosphere of the arctic zone and their interactions ... <STA>
 - + Study on the evaluation of the feedback effect of the global warming on the permafrost in Siberia ... <EA, MAFF>
- d. Study on the elucidation of the effects of ecological system on the global warming
 - + Man and biosphere planning project (MAB) ... <MOE>
 - + Clarification of carbon cycling processes in the terrestrial ecosystem ... <EA, MAFF>
 - + Research programme on the changes of tropical forests and their influences ... <STA>
- e. Paleoclimatological study, and other studies
 - + International joint study for the elucidation of the mechanism of desertification ... <STA>*

Note: Study themes marked with an asterisk are financed from Special Coordination Funds for Promoting Science and Technology which is used in accordance with the guideline decided by the Council for Science and Technology.

(2) Study for the refinement of climatological models

- + International joint study program concerning Sun-Earth system energy (STEP) ... <MOE>

- + International joint study program concerning climatological changes (World Climate Research Program, WCRP) ... <MOE>
 - + Japan-China joint research program concerning the terrestrial and atmospheric interactions in the Heilong Jiang river basin (HEIFE) ... <MOE>
 - + Measures concerning climate issues ... <MOT>
 - + Study for the upgrading of the global warming predicting technology ... <MOT>
 - + Study on the assessment of climate changes using climate models ... <EA, MITI, MOT>
 - + Precise evaluation of greenhouse effect of methane, nitrous oxide, and other gases ... <MOT>
 - + Studies on the mechanism of climate changes due to global warming and their effects ... <STA>
- (3) Studies concerning the production and absorption of greenhouse gases
- + Study on the behavior of green house gases and aerosols ... <STA>
 - + Clarification of the sources and emission of methane and nitrous oxides ... <EA, MIW, MAFF, MITI, MOT, MOC>
 - + Evaluation of temporal and spatial variability of greenhouse gases ... <EA, MITI>
 - + Clarification of the atmospheric chemistry of greenhouse gases and related compounds ... <EA, MITI>
- [2] Assessment of effects
- (1) Study on the effects of global warming on the ecosystem
- + Study for the dynamic analysis of agricultural, forestry and fishery ecosystems in relation to global warming and for the development of forecasting technology ... <MAFF>
 - + Evaluation of the global warming effects on plants ... <EA, MAFF>
- (2) Study on the effects of global warming on health
- + Evaluation of the effects and the risks of global warming on human health ... <EA, MIW>
- (3) Study on the effects of global warming on water resources
- + International hydrological program (IHP) ... <MOE>
 - + Basic study on the changes in the water supply-demand conditions due to global climate changes ... <NLA>
 - + Assessment of the global warming effects on the water balance ... <IIDA, MOC>
 - + Influence study of sea level rises, changes in runoff characteristics, acid rains, temperature rise, hydrology, water quality, etc. ... <MOC>
- (4) Study on the socio-economic impacts of global warming
- + Studies on the effects of global warming on climate changes ... <STA>
 - + Study on the disaster forecast in the global hydrological process ... <STA>

- + Assessment of global warming effects on urban environment, and its countermeasures ... <EA>
- + Review of industrial and economic policies for the preservation of Earth's environment ... <EPA>
- (5) Studies on the effects of global warming on the coastal areas
 - + Study on the effects of sea level rises on the socio-economic activities in the coastal areas ... <MOT>
 - + Clarification of effects of sea level rise caused by global warming ... <EA, MITI, MOT, MPT, MOC>
 - + Basic survey of the coastal areas ... <MOC>
 - + Influence study of sea level rises, changes in runoff characteristics, acid rains, temperature rise, hydrology, water quality, etc. ... <MOC>

[3] Planning and evaluation of measures

- (1) Studies on the methodology for the assessment of global warming measures
 - + Evaluation of measures to cope with global warming ... <EA, MIW, MAFF, MITI, MOC>
 - + Study of assessment technologies for global warming measures ... <EA>
- (2) Studies for the development of environmentally friendly social systems
 - + Study for the formulation of regional model program for the promotion of global warming measures ... <EA>
 - + Study for the development of efficient physical distribution system ... <MOT>
 - + Study for carbon dioxide emission control systems that can be implemented on a household basis ... <EA, MOC>
 - + Study for the promotion of electric cars for a new transport system that can minimize carbon dioxide emissions ... <EA, MITI, MOT>
- (3) Studies for the planning and assessment of measures
 - + Survey for global environment preservation measures ... <EA>
 - + Study for the CO₂ recycling capability preservation and development programs ... <EA>
 - + Promotion of planning for global warming measures ... <EA>
 - + Processing and analysis of basic data concerning greenhouse gas emission control measures ... <EA>
 - + Study of livestock farming technologies concerning global warming ... <MAFF>
 - + Projects for the establishment of soil and fertilizer application management technologies to improve the environmental functions ... <MAFF>
 - + Experimental farming by slow-release fertilizer ... <MAFF>
 - + Commissioned survey for the establishment of agriculture for the improvement of environmental protection capability ... <MAFF>
 - + Study for measures against global warming (sea level rise) ... <MAFF>

- + Study for motor vehicle CO₂ emission control measures and establishment of new mileage standards for the purpose of global environment protection measures ... <MOT>
- + Measures concerning climate issues ... <MOT>
- + Study for the promotion of transport energy measures to contribute toward controlling the global warming ... <MOT>
- + Study for the harnessing of untapped energy resources in the littoral areas ... <MOT>
- + Effects of Turbulent flow in the workshop on the flow into the hood ... <MOL>
- + Study concerning on global environmental problems ... <MOC>
- + Study on the harnessing of untapped energy resources ... <MOC>
- + Study on the effective use of sewage as a source of energy and materials ... <MOC>
- + Study on the effect of the streamlining of traffic flow on the mitigation of global warming ... <NPA>
- + Review of industrial and economic policies for the protection of Earth's environment ... <EPA>

(4) Comprehensive study on global warming with emphasis on Asia Pacific Region

- + Study on global environmental changes with center on Asia Pacific Region ... <MOE>
- + Study on the development of global warming measures analysis model for Asia Pacific Region (AIM) ... <EA, MAFF>
- + Study on the mechanism of Asia monsoon ... <STA>

2. Observation/Monitoring

[1] Observation and monitoring

(1) Fact-finding survey of global warming phenomena

- + Meteorological and oceanographic observation by satellites (meteorological conditions, sea surface temperature, etc.) ... <MOT>
- + Climatological observation (temperature, atmospheric pressure, humidity, precipitation, solar radiation, etc.) ... <MOT>

(2) Observation and monitoring for the tempo-spatial distribution study of greenhouse gases

- + Monitoring by Global Environment Research Center ... <EA>
- + Observation of background air pollution ... <MOT>
- + Observation of oceanographic background pollution ... <MOT>
- + Observation by meteorological rockets ... <MOT>

(3) Observation concerning sea level changes due to global warming

- + Oceanographic leveling ... <MOC>
- + Observation and monitoring of Mean Sea Level (variation) ... <MOT>

[2] Development of techniques for observation and monitoring

(1) Studies for the development and use of satellites

- + Studies on development of new laser radar techniques ... <EA, MPT>
- + Production of observational research equipment to be carried aboard satellite ... <EA>
- + Development of greenhouse gas sensor system ... <MITI>
- + Study for the development of multi-functional transport satellite system ... <MOT>
- + Study on the two-frequency Doppler radar for extraterrestrial observation of precipitation ... <MPT>
- + Development of Earth observatory platform engineering satellite ... <STA>
- + Study for the development of satellite for the observation of tropical rain forests ... <STA>
- + Study on the remote sensing technology for observation of earth's environment ... <STA>
- + Earth observation program ... <STA>
- + Promotion of integrated use of Earth observation data ... <STA>
- + Study on the development of data base for analytical method of satellite data ... <STA>

(2) Development of technologies for analysis of solar exosphere and for the measurement of trace gases

- + Study on the earth's environment measuring technology using short millimeter band radio wave ... <MPT>
- + Research and development of space weather forecast system ... <MPT>
- + Research and development of earth's environment measuring technology using optically active sensor ... <MPT>

(3) Development of observational technologies for oceanographic changes

- + Research and development of ocean observation technology ... <STA>

(4) Monitoring of Earth's environment

- + Monitoring by Earth Environment Research Center ... <EA>

[3] Distribution of observation and monitoring data

(1) Development and networking of earth observation data base

- + Development of earth observation data network and directory data base ... <STA>
- + Promotion of integrated use of earth observation data ... <STA>
- + Multilateral cooperation through WMO ... <MOT>

(2) Development of measurement and information network technology

- + Research and development concerning Earth's environment measurement and information networking ... <MPT>
- + Development study concerning the use of radio wave and information communication for the protection of Earth's environment ... <MPT>
- (3) Geographic information system development project for the wide-area environmental protection in developing countries ... <MOC>
- (4) Data service by the Centers
 - + Earth Environment Research Center ... <EA>
 - + Administration of Japan Oceanographic Data Center ... <MOT>
 - + World Data Center for Greenhouse Gases ... <MOT>

V. DEVELOPMENT AND DISSEMINATION OF TECHNOLOGY

1. Technologies for limiting emission of greenhouse gases

[1] Development of technologies for the development and use of energy

- (1) Technology for development and utilization of nuclear energy maintaining the highest available standards of safety ... <STA, MITI>
- (2) Technology development for the promotion of the introduction of natural gas ... <MITI>
- (3) Facilitation of development and introduction of new and renewable energy sources such as solar energy, wind energy, and geothermal energy
 - + Research and development of new energy sources ... <MOE>
 - + Promotion of development and introduction of new and renewable energy sources ... <MITI>
 - + Development of a wave power extracting caisson breakwater ... <MOT>
 - + Study on the development and use of local energy sources such as geothermal energy ... <HDA>
- (4) Others
 - + Evaluation of new technologies for methanol-fueled cars, forecast and assessment of positive and negative effects of their introduction ... <MOT>

[2] Technology development for the utilization of unused energy and for the improvement of energy efficiency

- (1) Development of production technologies that can minimize CO₂ emissions
 - + Comprehensive studies for the development of harnessing technologies of biological functions to create new demands ... <MAFF>
 - + Development of biodegradable plastics and other materials that can minimize the environmental loads ... <MITI>
 - + Development of environmentally sound production processes such as bioreactors ... <MITI>
 - + Development of new environmentally sound metals, and of environmentally sound recycling technologies ... <MITI>

- + Development of microbial hydrogen production technology ... <MITI>
- + Encouragement of industry's efforts to develop technologies that will minimize loads on global environment ... <MITI>

(2) Development of energy-conservation technologies

- + Improvement of energy efficiency ... <MITI>
- + R & D on new technologies for planning and construction of sustainable society ... <MOC>

[3] Development of technologies for the recycling of wastes

- + Development of technologies for the reduction of carbon dioxide emissions from waste incineration ... <MITW>
- + Study for the development of wide-area waste incineration energy recovery technologies and systems ... <MITW>
- + Development of technologies for the processing of greenhouse gases at the dump sites and for early stabilization of landfills ... <MITW>
- + Energy conversion promotion program at incineration plants ... <MITW>

[4] Others

- + Study on the methane production mechanism in the humid tropical farms, and development of methane production control technology ... <MAFF>

2. Technologies for absorption, fixation, etc., of greenhouse gases

- + Development of technologies for the fixation and utilization of carbon dioxides by making use of microorganisms, algae, hydrogen, etc. ... <MITI>
- + Research and development of CO₂ fixation technologies based on artificial photosynthesis, etc. ... <MITI>
- + Development of basic technics to create spaces for flowers and greens ... <MOC>
- + Photosynthetic sciences ... <STA>
- + Development of radiological technology for the processing of stack gases ... <STA>
- + Analytical study of rice genome ... <MAFF>
- + Development of water resources and irrigation methods for the prevention and control of desertification of irrigated farmland ... <MAFF>

VI. PROMOTION OF PUBLIC AWARENESS

[1] Promotion of public awareness through publicity activities

- (1) Promotion of public awareness through the distribution of pamphlets, dissemination of results of investigation and research, TV broadcasting, holding of lecture meetings and symposium, and the issue of

commemorative stamps

... <each ministry and agency>

- (2) Promotion of public awareness through various events in the "Environment Month" ... <EA>
 - (3) Promotion of public awareness through various activities supported by the Regional Environmental Preservation Fund of prefectural public organizations ... <EA>
 - (4) Subsidies to experimental courses in environmental protection (comprehensive project for social education activities) of cities, towns, and villages ... <MOE>
- [2] School education Preparation of materials for teaching environment education in primary schools and the holding of symposiums on environmental education and research conferences particularly for teachers ... <MOE>
- [3] National campaign to promote natural resources and energy conservation and promote greening
- (1) Heightening of awareness concerning the importance of energy conservation through "Energy Conservation Month" and "The Day of Thorough Examination of Energy Conservation" ... <EPA, MITI, MOC>
 - (2) Promotion of greening through development of a greening philosophy and a spirit fond of forestry through "Reinforcement of National Greening Week" and "Green Day" ... <MAFF>
 - (3) Diffusion of and education in greening of the city through "Activities that Promote Greening of the City during Spring" and "City Greening Monthly" ... <MOC>

VII. PROMOTION OF INTERNATIONAL COOPERATION

- [1] Comprehensive support for technology transfer for arresting global warming
- (1) Joint financing through contributions and yen loans to the Global Environment Facility (GEF) of the World Bank to support the efforts of developing countries toward global environmental problems ... <EPA, MFA, MOF, MITI>
 - (2) Promotion and supporting of countermeasures against global-warming in the Asia Pacific Region (e.g. supporting country specific study in Indonesia) ... <EA>
 - (3) Supporting of formulation of energy strategies in developing countries by the Institute of Developing Economies ... <MITI>
 - (4) Holding of international seminar on monitoring of Mean Sea Level variation in Asian and Oceanian region ... <MOT>
 - (5) Supporting for the improvement of the meteorological observation and monitoring system in developing countries ... <MOT>
- [2] Promotion of technology transfer to arrest global warming
- (1) Promotion of investigation for materializing the UNEP International Environment Technology Centre ... <EA, MFA>
 - (2) Contributions to UNIDO for the preparation of manuals on energy

- conservation for developing countries ... <MITI>
- (3) Implementation of environmental preservation technical research projects by The Association for Overseas Technical Scholarship (AOTS) and the International Center for Environmental Technology Transfer (ICETT) ... <MITI>
- [3] Support to conservation and development of tropical forests and other sinks of carbon dioxide
- (1) Supporting of ITTO and international promotion of the Tropical Forest Action Program (TFAP)
- + Contributions to ITTO ... <MFA, MAFF>
- + Contribution of expenses necessary for TFAP to FAO ... <MFA, MAFF>
- (2) Carrying out of project-type technical cooperation ... <MFA>
- (3) Materialization of the global consensus on forests such as "Forest Charter" proposed by Japan ... <EA, MFA, MAFF>
- (4) Conduct of the "Conference of Senior Foresters" which aims at conservation and sustainable management of tropical forests ... <MAFF>
- (5) Support for the improvement of productivity of existing farmlands to minimize the reduction of tropical forests that stem from the burning of fields such as reclaimed land ... <MAFF>
- (6) Fostering of personnel for the cooperation in sustainable management of tropical forests through the Japan International Forestry Promotion & Cooperation Center (JIFPRO) ... <MAFF>
- (7) Development, analysis, and provision of satellite data by the Tropical Forest Control Information Center ... <MAFF>
- (8) Promotion of cooperation in investigation for the resolution of such industrial pollution problems as air pollution in developing countries by Japan International Cooperation Agency ... <MITI>
- (9) Preparation of a master plan by the Industrial Pollution Control Association of Japan for preventing industrial pollution in the Asia Pacific Region ... <MITI>
- (10) Promotion of transfer of pollution prevention technology by the Japan-China Friendship Preservation Center ... <EA, MFA, MITI>
- (11) Supporting of formulation of an action program for each region for the prevention of desertification ... <MAFF>
- [4] Promotion of cooperation in research and the development of appropriate technology
- (1) Promotion of international cooperation in research at such national institutes as the National Environment Institute and the Research Institute of Innovative Technology for the Earth (RITE) ... <each ministry and agency>
- (2) Construction of an international network by artificial satellite data ... <STA>
- (3) Development and improvement of technology that preserves and forms mangrove trees and tropical forests ... <MAFF>
- (4) Development of technology restoring forests in the areas threatened to desertification ... <MAFF>

- (5) Development of water-retaining substances in dry areas ... <MITI>
- (6) Development and utilizing promotion of the simplified desulfurizing process for coal firing boiler to preserve forests ... <MITI>

VIII. PROMOTION OF THE ACTION PROGRAM

- + Supporting of establishment of a model program for the promotion of countermeasures against global warming at the regional level (5 prefectures and designated cities) ... <EA>

IX. OTHERS

- + Examples of measures under consideration for the development of the "New Earth 21" (see appendix)

Notes:

1. Besides the above, various measures are being studied for the materialization of the action program. Nevertheless, those that are being studied and researched were omitted from this document.
2. Some items overlap due to arrangement.
3. The order of the ministries and agencies was according to order of control.

(APPENDIX)

Examples of Measures Under Consideration for the Development of the "New Earth 21"

<STA, EA, MFA, MOE, MIW, MAFF, MITI, MOT, MPT, MOC>

Examples of measures under consideration at each ministry and agency in order to develop an comprehensive and long-term vision ("New Earth 21") in regard to consolidation of the scientific basis, promotion of energy and resource conservation, introduction of clean energy, development of innovative environmental technologies, expansion of sinks of greenhouse gases, and development of future generation energy-related technologies through the cooperation of each country of the world in a long-term perspective, are the following.

[1] Consolidation of the scientific basis

- (1) Research and development of observation technology including the ADvanced Earth Observing Satellite (ADEOS)
- (2) Investigation and research for unraveling the mechanism of global warming
- (3) Climate prediction by coupled atmosphere-ocean models
- (4) Research concerning the forecast of effects resulting from changes in the water balance due to global warming and rise in the sea level

[2] Promotion of energy and resource conservation

- (1) Development and introduction of energy conservation technology and promotion of transfer of such technology to developing countries
- (2) Research and development on new technologies for planning and construction of sustainable society the energy- and natural resource-conservation type national construction technology
- (3) Development of an environment-preserving traffic system
- (4) International cooperation in waste disposal for the prevention of global warming including the use of excess heat from incineration, such as power generation using refuse, and the promotion of recycling of waste

[3] Introduction of clean energy

- (1) Promotion of the development and utilization of nuclear energy maintaining the highest available standards of safety
- (2) Development and introduction of new and renewable energy technologies such as solar and wind energy, geothermal energy, and biomass, and promotion of transfer of such technology to developing countries
- (3) Introduction of such low-emission vehicles as electric vehicles
- (4) Development of a wave power extracting caisson breakwater

[4] Development of innovative environmental technologies

+ Development of technology for fixation and utilization of carbon dioxide

[5] Expansion of sinks of greenhouse gases through afforestation and preservation of tropical forests

- (1) Cooperation by providing financial aid for the improvement of capacity of preservation of forests of developing countries

- (2) Clarification of regions to be afforested in developing countries and the supporting of promotion of long-term afforestation
 - (3) Development and improvement of technology that preserves and forms tropical forests and the transfer of such technology to developing countries
 - (4) Technical development of technology that restores forests for the prevention of desertification, water source development, and brackish water method
 - (5) Enhancement of the absorbing capacity of carbon dioxide through the improvement of conservation forests in domestic forests from an international standpoint, long-term deforestation, and multi-layer deforestation
- [6] Development of future generation energy-related technologies
- + Research on solar power generation system

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ACTION PROGRAM TO ARREST GLOBAL WARMING

Decision made by the Council of Ministers
for Global Environment Conservation

October 23, 1990

The Government of Japan

Sept 25

*MSTT - New Earth 2/
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[UNOFFICIAL TRANSLATION]

ACTION PROGRAM TO ARREST GLOBAL WARMING

**A decision made by the Council of Ministers for
Global Environment Conservation of the Government
of Japan, On October 23, 1990**

In accordance with the decision taken by the Council of Ministers for Global Environment Conservation on June 18, 1990 on the Formulation of the Government's Policy on Global Warming, the Action Program to Arrest Global Warming (hereinafter referred to as the "Action Program") is hereby established.

I. Background for the Action Program and its Significance

Global warming is a grave concern which could pose a serious impact on the very foundation of human life on earth. In a report of the Intergovernmental Panel on Climate Change (IPCC), it is predicted that if greenhouse gases continue to be released in the manner at present, temperature increase which is unprecedented in the last 10,000 years would occur, and that there could be serious impacts on natural, economic and social systems, such as sea level rise and climatic changes, and threats to man's living environment.

As we are blessed by the today's global environment, it is our obligation to hand over to future generations the global environment, which forms the foundation of their survival and development, in a healthy condition. With this understanding kept in mind, it is essential for each nation of the world to coordinate with one another and to steadily promote feasible measures so that damage from global warming may not become prominent and give birth to irreversible situations, although there remain areas that have yet to be made scientifically certain about global warming.

Under these circumstances, Japan, utilizing its economic power, technological and other capabilities, must positively play a role which is commensurate with its position in the world community, e.g., assistance to the developing countries.

Japan is among the developed countries where the emission of CO₂ per capita is lowest, as both the governmental and private sectors have strived for the effective utilization of energy. Nonetheless, it is emitting a considerable amount of CO₂ and there have been signs of a rise in the emission in the last several years because of its brisk economic activities boosted by expanding domestic demand in recent years, changes in the people's life style and etc..

The limitation of greenhouse gases emissions should be

conducted with comprehensive consideration of the seriousness of effects caused by global warming, the feasibility of measures for their limitation and for adaptation to it and other factors, while ensuring the stable development of the economy in line with the concept of sustainable development. It is necessary for Japan, as the first step, to stabilize its emissions of greenhouse gases as soon as possible, as a part of the global common effort to limit the emissions of greenhouse gases.

As the availability of forests which serve as sinks for CO₂ is on the downswing on a global scale, it is necessary that Japan, giving thought to its relations with forest resources in the world, should take the lead in grappling with their afforestation as well as the prevention of their decrease in line with the concept of sustainable development.

Moreover, in order to reduce uncertainties relating to global warming and take appropriate measures on the basis of scientific findings, it is also required to step up research and study as well as observation/monitoring and to strive for further development and dissemination of technology, including innovative technology.

Having considered those mentioned above, the Action Program has been formulated to make clear the Government's near-term policy for promoting systematic and comprehensive measures to cope with global warming as well as the whole picture of feasible measures which should be undertaken in the future so as to ensure the people's understanding and cooperation and, at the same time, to define Japan's basic position to take part in the formation of an international framework dealing with global warming.

II. Basic Elements To Be Taken Into Account for Promotion of Measures To Cope With Global Warming

1. Formation of Environmentally-sound Society

To arrest global warming, there is a need to implement a wide variety of extensive and long-term measures in every sector of society, and the people's understanding and cooperation are indispensable. On the basis of such understanding and cooperation, it is necessary to seek an appropriate balance between the environment and human activity in the whole areas of Japan in the course of efforts to prevent an excessive concentration of urban and economic functions in specific areas. At the same time, it is also required to build a society which poses less burden on the global environment by widely examining the present socioeconomic systems with a view to creating urban structures and transportation systems which are less likely to emit greenhouse gases, by promoting to establish environmental ethics, and by changing the people's life style into one in which consideration is given to the environment.

2. Compatibility with Economy's Stable Development

Global warming is an issue which is tied in with every aspect of our lives and economic activities, and the measures to cope with it should produce a wide variety of impacts on the increasingly interdependent world economy. In trying to solve the problem of global warming, therefore, the measures need to be compatible with a stable development of the world economy in line with the concept of sustainable development with the enhanced coordination of economic policy with environmental policy, technological breakthroughs and so forth.

3. International Coordination

As the cause and effect of global warming are of a global nature, not only efforts by each individual nation but also international coordination in grappling with it is indispensable.

Particularly, as CO2 emissions are expected to increase at a rapid pace in conjunction with future global population growth and economic development, it is essential for Japan, with its advanced technology and ample experience in the environmental conservation, to take the lead in global efforts through international cooperation.

From these points of view and in a long-term perspective, it is required that each country of the world should coordinate in creating an comprehensive and long-term vision (New Earth 21) in regard to consolidation of the scientific basis, promotion of energy and resource conservation, introduction of clean energy, development of innovative environmental technology and expansion of sinks of CO2, and development of energy-related technology for the next generation among others.

III. Targets Under the Action Program

The targets for the limitation of greenhouse gas emissions shall be set as follows.

- (1) The Government of Japan, based on the common efforts of the major industrialized countries to limit CO₂ emissions, establishes the following target for the stabilization of Japan's CO₂ emissions.
 - a. The emissions of CO₂ should be stabilized on a per capita basis in the year 2000 and beyond at about the same level as in 1990, by steadily implementing a wide range of measures under this Action Program, as they become feasible, through the utmost efforts by both the government and private sectors.
 - b. Efforts should also be made, along with the measures above, to stabilize the total amount of CO₂ emission in the year 2000 and beyond at about the same level as in 1990, through progress in the development of innovative technologies, etc., including those related to solar, hydrogen and other new energies as well as fixation of CO₂ at the pace and in the scale greater than currently predicted.
- (2) The emission of methane gas should not exceed the present level. To the extent possible, nitrous oxide and other greenhouse gases should not be increased.

With respect to sinks of CO₂, efforts should be made to work for the conservation and development of forests, greenery in urban areas and so forth in Japan and also to take steps to conserve and expand forests on a global scale, among others.

IV. Duration of the Action Program

The Action Program covers the period from 1991 to 2010 with 2000 set as the intermediate target year. During this period, the Action Program should be reviewed, as necessary, for its flexible response to international trends, accumulated scientific findings and so on.

V. Necessary Measures

For accomplishment of the targets of this Action Program, the Government should promote the following measures, implementing measures one after another as they become feasible. Here, full care should be exercised so that the implementation of measures to cope with global warming will not result in raising and expanding other environmental problems.

1. Measures To Limit CO2 Emissions

The structure of cities and regions, transportation system, production structure, structure for energy supply, life styles and other factors in Japan should be widely re-examined, and the development and dissemination of technology should be promoted and thereby the following measures should be implemented in a comprehensive manner.

a. Formation of Urban and Regional Structure With Low CO2 emissions

Primarily in cities where various activities are concentrated, attempts should be made to build an urban or regional structure with low CO2 emission, while ensuring good living environment.

(1) By making use of the effect of greenery to moderate high temperature in urban areas and by alleviating the heat-island phenomena in urban areas, the urban weather should be mitigated, and thus the energy demand for air-conditioning should be reduced.

(2) It should be encouraged to adopt insulated structure of dwellings and other buildings, and to propagate buildings of energy-saving types, such as "passive solar houses." In addition, renewable energy, such as those through solar water boilers, solar energy systems and photovoltaic cells, should be promoted.

(3) While considering technology development such as NOx control, and the compatibility with existing electric power systems, efforts should be made to promote adoption of co-generation systems which improve energy efficiency (both heat and power supply system), such as fuel cells.

(4) Unused heat with low thermal energy, from urban activities such as subway and sewage systems and thermal energy in river and sea water, should be used as thermal energy for air-conditioning through usage of heat pumps. Furthermore, district heating and cooling systems with the use of such types of heat, should be diffused.

(5) The supply of heat from incineration process of wastes, the power generation with heat from the process and the utilization of energy from sewage sludge, etc., should be

positively promoted. Efforts should also be made to promote more efficient use of energy for transportation of wastes, and for facilities for water supply, sewage and other similar systems.

b. Formation of Transport Systems with Low CO2 Emissions

In order to limit CO2, while responding to increasing demand for transport and ensuring adequate mobility of people and goods, efforts should be made to reduce emissions from automobiles and other transport machines. Taking into account the efficient use of various transport systems, measures should be considered to mitigate traffic demand by motor vehicles, and should be introduced one after another, as they become feasible ones, so as to formulate transport systems with low CO2 emissions.

(1) CO2 emissions from individual motor vehicles should be reduced through further improved fuel consumptions by adoption of bodies with less weight, reduction of resistance at running time and so forth, as well as through development and adoption of hybrid engines, ultra lean burn systems, technology for more effective use of regenerating energy and so on. Furthermore, efforts should be made to improve energy efficiency in such areas as railways, ships, aircrafts and so forth, through technological improvement, etc., and the introduction of more energy efficient ones should be promoted.

(2) The use of energy with low CO2 emissions should be promoted, primarily in the automobile sector, where introduction of automobiles with low CO2 emissions, including electrical cars, should be actively introduced.

(3) As for cargo transport, modal shift (shift to mass transit systems such as railways and ships) should be actively promoted in the areas of medium or long distance transport between major terminals, and active use of business trucks, joint bulk transport, adoption of appropriate information systems, development/improvement of terminal facilities and others should be promoted, in order to improve transport efficiency, in the trucking area.

(4) Concerning passenger transport, the development of railways, buses, new traffic systems and other public means of transit should be stepped up. The use of public means of transit in particular in and around metropolitan areas should be promoted through better transport services and other measures.

(5) In order to reduce the CO2 emissions from automobiles during their trips by mitigating traffic jams and assuring efficient and smooth trips, intersections, crossings, bypasses, ring roads and other facilities should be developed/improved, and sophisticated traffic control and other systems should be facilitated.

c. Formation of Production Structure with Low CO2 Emission

In the manufacturing, agriculture, forestry and fisheries, construction and other industrial sectors, the efficient use of energy and the introduction of energy sources with low or no CO2 emissions should be positively promoted.

(1) In the manufacturing sector, improvement of combustion efficiency, the facilitation of various manufacturing facilities of energy-saving types and the introduction of processes which contribute to energy-saving, among others, should be encouraged. For example, the direct iron ore smelting reduction process, direct causticization and other new technologies should be developed and efforts should be made to introduce them. More effective use of unused heat, etc., among factories at industrial complexes and other places should be promoted.

(2) In agriculture, forestry and fisheries, energy efficiency of farming machinery and fishing ships, among others, and the use of natural energy, biomass and other kinds of energy should be promoted as energy for the warming in horticulture and drying of grains and other products.

(3) In the construction sector, energy efficiency of construction machinery should be improved. Portland blast-furnace slag cement should be encouraged for use.

d. Formation of Energy Supply Structure with Low CO2 Emissions

With regard to power generation, urban gas manufacturing businesses and other energy conservation sectors, more energy efficient conversion processes, introduction of energy sources with low or no CO2 emissions should be promoted.

(1) In the sector of power generation,

A. As an energy with no CO2 emission, development and use of nuclear energy should be facilitated, based on the assurance of safety. Hydraulic and geothermal power should be also actively used. The use of photovoltaic systems and wind power systems should be promoted, while further developing technology. Natural gas, as a fuel with low CO2 emissions should be also actively used.

B. In order to improve efficiency of power generation, the development and introduction of combined-cycle power generation and ultra-super critical plants, among others, should be promoted.

C. The introduction of dispersed power generation, such as fuel cells and photovoltaic cells, should be positively encouraged.

(2) The infrastructure for the use of LNG as urban gas and for the introduction of natural gas should be further developed.

(3) In order to smooth out electric demand difference between day and night, the reduction of peak-hour demand and the storage of energy, among others, should be promoted under the establishment of technology for the centralized load. Gas air-conditioning systems and so forth should be also encouraged.

e. Realization of Life Style With Low CO2 Emissions

In order to realize life style with low CO2 emissions, various social systems should be reviewed and improved, and the environmental education should be further strengthened.

(1) Along with the recycling of paper, cans, bottles and so forth, new systems for the development and diffusion of easily recyclable and recycled products should be worked out.

(2) Distribution services should be reviewed in such aspects as excessive packing, high energy consumption of automatic vending machines and floods of direct mail.

(3) Products with low CO2 emissions should be propagated for use, among others, by utilizing environmental labeling.

(4) A daylight saving system should be considered for adoption, and efforts should be made to reduce working hours, through encouragement of across-the-board access to summer holidays and other means.

(5) At households, offices and the like, adequate temperature should be adopted in air-conditioning and heating, energy control systems should be introduced and household equipments and office automation devices with high energy efficiency should be facilitated.

2. Measures to reduce emission of Methane and Greenhouse Gases

The following measures should be taken in a comprehensive manner against greenhouse gases other than CO2, such as methane, nitrous oxide and tropospheric ozone, the concentration of which are increasing .

Among greenhouse gases, measures for those substances controlled by the Montreal Protocol on the Substances that Deplete the Ozone Layer, as well as domestic legislation, are not a part of this Program, but should be promoted under those schemes.

a. Measures Against Methane

Since traditional pollution control measures and CO2 control measures in the future are also effective for control of methane, those measures should be further enhanced. Measures to control methane should be further promoted, including examination

of new measures and technology development.

(1) Measures in Waste Management

A. Best effort should be made to promote resource recovery and reduction of domestic waste.

B. Efforts should be made for incineration of all combustible wastes other than those for resource recovery and other intermediate treatments so that significant reduction of methane should be achieved through elimination of untreated organic matters for landfills. In implementing those measures, efforts should be made for recovery of unused incineration heat.

C. With regard to industrial wastes, recycling, refuse and adequate treatment of such wastes as sludges and waste woods should be promoted

D. Where Landfill is adopted for organic matter, adoption of semi-aerobic landfill method with low methane emission, should be enhanced and recovery, treatment and use of methane from those sites should be promoted.

(2) Measures in Agriculture

A. As for paddy fields, recognizing that better management of irrigation systems, such as improved management of drainage water, and the appropriate use organic matter for soil, among others, should contribute to reductions in the methane emission, while studying quantitative mechanisms of methane emissions, those measures should be further promoted.

B. With regard to stockbreeding, the measures, mainly the aerobic fermentation of Livestock wastes should be promoted, and surveys should be conducted to grasp emissions of enteric fermentation.

(3) Measures in Energy Production and Use

A. As for coal mining, methane gas drainage from coal seams and utilization of drained gas, which is conducted as one of safety measures, should continue to be promoted.

B. Concerning gas supply and other services, measures to control emissions, such as prevention of gas leaks, should continue to be promoted.

C. Regarding fuel combustion in the transport and other sectors while promoting effective use of energy surveys should be conducted to grasp methane emissions from those areas, and if necessary, control measures such as removal of methane, should be considered, including technical feasibility of those measures.

b. Measures Against Nitrous Oxide

As for emission of nitrous oxide from soils to which nitrogenous fertilizer is applied, while conducting surveys to grasp emissions, such control measures should be considered as improved management of fertilizer, in terms of more effective use of nitrogen, development and use of the slow release nitrogen fertilizers. As regards the emission from the combustion of fossil fuels and others, the mechanism of generation and emission from this field, and the quantity of emitted methane should be studied and surveyed, and researches and technology development should be promoted for the introduction of control measures.

c. Other Measures

The contributions on global warming caused by carbon monoxide, non-methane hydrocarbon and nitrogen oxide (NO and NO₂), which increase the atmospheric concentration of methane and/or tropospheric ozone, should be assessed, and measures adopted at present should be further promoted.

3. Measures to Enhance CO₂ Sink (Forests and Other Greens)

In order to appropriately maintain and expand forests and greens in and around urban areas, which are recognized as sink of CO₂, surveys should be made to grasp quantity and quality of forests and measures should be taken to promote comprehensive and systematic management of forests and greens in urban areas, taking into account the ecological diversity and sustainable use of forests.

In addition, rational use of timber resources should be promoted.

a. Adequate management of Domestic Forests and Greens in Urban Areas

(1) Appropriate Management of Forests

A. Taking into account the diversity of forests, from those with high degree of nature to those remaining in urban areas, their systematic conservation should be ensured, and sustainable management of forests be promoted.

B. Management level of forests should be improved in such ways as appropriate thinning, together with the development of forestry production system. The improvement of various types of forests and sustainable management should be promoted by means of partial cutting, long-rotation cutting, multi-storied forest management, tended natural forest management, non-tended natural forest management.

C. Various activities by private sectors, for the conservation of forests, such as National Trust activities, should be supported, and the conservation/management of forests

around urban areas, and forests near rural communities, should be enhanced.

D. Appropriate conservation/management of forests should be promoted with the participation of and the contributions from general public.

E. Environmental effects by pollutants, such as acid rain, should be studied, so that appropriate measures should be taken.

(2) Conservation and Creation of Greens in and around Urban Areas

A. Greens in public facilities, factories, business establishments and other places should be increased.

B. In order to link and maintain green lands and forests in and around cities in a systematic manner, urban parks and green lands in cities should be adequately conserved and expanded. In addition, greens in urban areas should be comprehensively created and increased through creation of greens at house lots, on the roof of buildings and the like.

C. Appropriate conservation/management of greens should be promoted with the participation of and the contributions from general public.

b. Rational Use of Timber Resources

(1) Promotion of Appropriate Trade of Tropical Timber

Efforts should be made to promote appropriate trade of tropical timber by positive contribution to the activities of the International Tropical Timber Organization (ITTO), the aim of which is to achieve sustainable management of tropical forests.

(2) Efficient Use of Timber Resources

The efficient use of timbers produced by thinning should be enhanced. Effective use of woods and wooden products should be also promoted through longer use of wooden products and their refuse, promotion of the use of recycled paper and reduction of one way use of those resources.

4. Promotion of Research and Observation/Monitoring

By taking note of the "Comprehensive Promotion of Research, Observation/Monitoring and Technological Development for the Conservation of the Global Environment " (Agreement at the Council of Ministers for the Global Environment Conservation), "Basic Plans for Research and Development On Earth Science and Technology" and other plans, research and

observation/monitoring on global warming should be comprehensively promoted. In so doing, efforts should be made to actively participate in international projects, such as the International Geosphere-Biosphere Program (IGBP) and the World Climatic Research Program (WCRP) and to promote exchange of research information.

Particularly , Japan should promote research and observation/monitoring focusing on the Asian-Pacific region with the cooperation of researchers in the region. For this purpose, attempts should be made to improve the research basis, including research, and observation/monitoring centers.

The results must be commonly used by developing data bases and establishing a network for their global utilization.

Talented researchers and technicians in broad areas associated with research on global warming should be developed.

a. Research and Survey

(1) Mechanism Understanding and Future Prediction

A. In order to understand the mechanism of global warming and improve techniques for its prediction, efforts should be made to understand the effects of the role of clouds , the effects of oceans including interactions between the atmosphere and the oceans, the effects of snow and ice , contributions of the ecosystem and the past climate.

For example, further examination should be made on the radiative process of clouds, oceanic variability including those in the deep layers, and the ice bed in the polar regions.

B. Climate models should be sophisticated by including the main factors which affect the formation of climatic features and changes into those models properly, and by reducing mesh intervals.

C. In order to contribute to the improvement of prediction and measures for a reduction of greenhouse gases , sources and sinks CO₂, methane, nitrous oxide and other greenhouse gases should be identified and quantified.

For example, efforts should be made to estimate the absorption of CO₂ by oceans and the emission of methane in Siberia and other higher-latitude areas.

(2) Assessment of Effects

In order to make more precise assessment, models should be developed to estimate the effects of global warming on the ecosystem, health, water resources, socioeconomic aspects, and of disaster in coastal areas. In addition, attempts should be made to establish methods for the economic assessment of the impacts and for natural resource accounting.

(3) Policy Planning and Its Evaluation

Further efforts should be made to establish methods for the assessment of technology to cope with global warming and also for the economic assessment of measures. In addition, studies for the establishment of an environmentally-sound social system and studies on the way of life and culture which are harmonized with global environment should be promoted.

(4) Comprehensive Studies on Global Warming With Special Reference to Asian-Pacific Region

Studies on the effects of, and measures against, global warming in the Asian-Pacific region should be strongly promoted.

For this purpose, efforts should be made to promote comprehensive studies on global warming focused on the Asian-Pacific region, by taking a leading part in international joint studies with the countries of the region.

Several programs should contribute to these research efforts, including improvement of regional climate prediction by understanding the process of global warming; quantification of emission and sequestration of greenhouse gases; impact assessment of global warming; policy planning and its evaluation

b. Observation/Monitoring

In order to further understand the phenomenon of global warming and its effects and to promote relevant research and study, the monitoring of greenhouse gases, related trace gases, and changes in the climate, oceans and, ecosystem should be systematically conducted with satellites, aircrafts, ships and ground monitoring stations. And the data gained through these monitoring activities should be circulated. In addition, the research and development of more sophisticated monitoring technology should be promoted.

For example, in the monitoring of greenhouse gases, climate and oceans, the use of satellites is of significance, so that by promoting the research and development of observation technology, such as sensors, and data-processing technology, contributions should be made to the global observation/monitoring activities under the international network.

5. Development and Dissemination of Technology

Japan has the world's top-level energy-saving and other technologies. In addition to the further dissemination of those technologies, efforts should be made to promote the development of more sophisticated energy-saving technology, technology for new energy, technology for the recovery and fixation of CO₂ and

so forth, in line with the aforementioned programs, etc. Efforts should be also made to build a social system in which the dissemination of those technologies may be encouraged.

a. Technology for Limiting the Emission of Greenhouse Gases

(1) In order to limit the emission of greenhouse gases, it is necessary to develop and utilize nuclear power on condition that its safety is assured. In addition, new/substitute energy with no or low emission of CO₂ and other greenhouse gases should be developed and utilized, including natural energy such as solar, wind and wave power, and natural gas, etc..

(2) Improvement of energy efficiency such as the development of highly efficient gas turbines and fuel cells should be promoted and manufacturing technology with low emission of CO₂ and other greenhouse gases, such as those using biological functions should be developed. In addition, the development of technology for the saving of energy and resources in houses and residential equipments, technology for the utilization of unused energy or highly-efficient energy use in the sewer systems, rivers, seawater and the waste treatment, and so on should be conducted, and the development of technology and systems for the more efficient utilization of energy in the transport sector including automobiles should be promoted.

(3) The development and dissemination of waste recycling technology should be promoted.

b. Technology for Absorption, Fixation, Etc., of Greenhouse Gases

Technology development for the recovery of carbon dioxide and other gases with absorbents and separation membranes should be conducted. Technology development for the long-term fixation and utilization of recovered CO₂ and other gases by the artificial photosynthesis and other means should be conducted.

Technology development to enhance biological CO₂ fixation capacity with the use of algae, biotechnology, biomass, etc., should be conducted.

Moreover, technology development for the conservation and development of forests as sinks of CO₂ and for the prevention of desertification as well as technology for the utilization of substitute resources for pulp to contribute to the conservation of forests should be conducted.

c. Technology for Adaptation to Global Warming

In order to prepare for the future changes in the

temperature, sunlight, rainfall and so forth caused by global warming, efforts should be made to develop agricultural, forestry and fishery technology, such as the development of breeds adaptable to the environment; technology for irrigation and the utilization of water resources adaptable to changes in the rainfall pattern; technology to cope with sea level rise, such as conservation of coastal areas and river basins, and urban restructuring; and technology for the conservation of vegetation and wildlife responding to climate change.

6. Promotion of Public Awareness

In regard to the promotion of measures to cope with global warming, efforts should be made to disseminate the outline of the Action Program and precise information, based on latest scientific knowledge on global warming, to promote environmental education, to support and subsidize voluntary actions for such purposes, so as to gain consensus of broad segment of people, and enhance concrete actions for global environmental protection.

(1) Efforts should be made to promote public awareness through TV and other mass media, and the Environment Week and other social events, to further promote environmental education, through frequent lectures on an ad hoc basis and the like.

(2) In school education, efforts should be made for strengthening of curricula on environmental education, such as the expansion of courses on global environment and studies through experiences with nature, and for improving teachers' abilities in this area.

(3) Resource/energy saving activities should be enhanced through institutional strengthening. In addition, activities for the conservation of global environment should be supported and subsidized.

(4) The results of surveys, researches and so forth should be released to the public, guidelines/manuals, including case reports on activities for the conservation of global environment should be prepared.

7. Promotion of International Cooperation

In order to strongly support developing countries' measures to cope with global warming, efforts should be made to promote international cooperation, through, for instance, replenishment of official development aid (ODA), while taking part in international efforts to provide support to developing countries, such as the consideration of the proposed Global Environmental Facility at the World Bank. Cooperation between developed countries should be positively promoted in the field of research and study, technology development and other sectors.

Here, the transfer to developing countries of technology should be promoted which contributes to arresting global warming, such as production facilities/technologies with high energy efficiency, and technologies for new and renewable energy. And positive support should be provided for the conservation and development of sinks of CO₂ centered on tropical forests which account for 40% of the world's forests.

a. Comprehensive Support for Technology Transfer for Arresting Global Warming

Comprehensive support should be positively provided to developing nations' efforts to cope with global warming, with respect to information gathering, observation/monitoring, effect assessment, formulation and implementation of response strategies and capabilities to cope with environmental issues.

b. Promotion of Technology Transfer To Arrest Global Warming

(1) To developing countries where the energy coefficient is low and the emission of CO₂ is expected to rise at a rapid pace in proportion to their future economic development, technology transfer which contributes to the arresting global warming, such as production facilities and techniques or technology for transport facilities with high energy efficiency, and new and renewable energy technology should be positively promoted.

(2) Efforts should be made for the establishment in Japan of a UNEP Global Environment Conservation Technology Center (tentatively named) which has the functions of information offering on technology for environmental conservation, consulting and training, among others, to developing countries. With cooperation with related institutions, global efforts in this field should be promoted.

C. Support to Conservation and Development of Tropical Forests and Other Sinks of Carbon Dioxide

(1) Efforts should be made to strengthen support to ITTO so that it can work as a fund for global forests in such a manner as to really accomplish the purposes of its establishment, and to internationally promote the Tropical Forestry Action Plan (TFAP) of the Food and Agricultural Organization (FAO).

Incidentally, appropriate measures should be taken, while working for related international coordination, so that Tropical Forestry Action Plan should be strengthened, placing more emphasis on forest conservation and protection of biological diversity, and that ITTO's Action Plan should be consolidated to enhance sustainable forest management and to improve market operations.

(2) In the light of the ideal of managing the green globe, support to management of sustainable forests, afforestation and conservation of the ecosystem, among others, should be promoted, while the sovereignty of countries having tropical forests is respected. Establishment of an International Forest Charter should be pursued, and thereby positive contributions should be made to the building of an international framework for forests.

(3) Positive cooperation should continue to be rendered in conservation, development and research of forests which center on tropical forests, such as monitoring of tropical forests and preparation of an international network.

(4) Efforts should be made to support tropical forest conservation programs adapted to regional characteristics of the countries having tropical forests, such as Brazil.

(5) In order to curb decrease in tropical forests due to new reclamation, e.g., as a result of slash-and-burn cultivation, support should be given to an enhancement of productivity of existing farmland.

(6) For temperate forests, comprehensive conservation measures should be supported with the coordination of international organizations in the same manner as for tropical forests.

(7) As to the global deforestation, the effects of acid rain and other environmental pollution are of significance. Therefore technology for the prevention of environmental pollution should be transferred as measures to cope with such environmental pollution.

(8) While working for coordination with international organizations, formulation of regional action programs for prevention of desertification should be supported. International cooperation for combating desertification, such as research cooperation which contributes to the prevention of desertification, should be promoted.

d. Promotion of Cooperation in Research and the Development of Appropriate Technology

(1) As regards research and study, and observation / monitoring related to global warming, and technology development, which centers on revolutionary one, such as fixation and effective utilization of CO₂, cooperation in these areas among developed countries should be positively promoted.

(2) In developing countries, it is essential to introduce appropriate technology which is suited to their technical, human and economic resources, and efforts should be made to develop and

disseminate such technology which is adaptable to existing condition in developing countries. In this case, research cooperation with research institutions in developing countries should be promoted.

e. Promotion of International Cooperation in the Private Sectors

As a great number of types of technology for environmental conservation are accumulated in industry and other private sectors through the past efforts to prevent environmental pollution in Japan, support should be given to activities for technology transfer by private sectors. Efforts should also be made to support activities in private sectors for sustainable forest management, afforestation and debt-for-nature swap.

f. Considerations to Prevention of Global Warming in International Cooperation Projects

In carrying out international cooperation projects, attention should be paid to the need of global warming prevention, e.g., through utilization of technology of low emission of CO₂, as necessary, so that development activities in developing countries can be compatible with global warming prevention. As conservation of tropical forests in specific areas is inseparably tied in with realization of sustainable development in their peripheral areas, due consideration needs to be given to a number of different aspects, including environmental, social, economic and cultural ones, for conservation of tropical forests international cooperation projects in the tropical region.

VI. Promotion of the Action Program

The Government of Japan should make every effort to carry out the Action Program in an effective and coordinated manner.

(1) Each ministry and agency should implement measures for realization of the items specified in "V. Necessary Measures", while considering the necessary policies on the basis of international discussions and studies.

(2) The Council of Ministers for Global Environment Conservation should be reported each year on the progress of implementation of the measures as well as the total amount of CO₂ emissions. On the basis of such reports, the promotion of the Action Program should be reexamined as necessary.

(3) Local governments are expected to make possible efforts in line with the Action Program. In order to ensure the cooperation of local governments, the central government should

present relevant information and the basic direction for the efforts by local governments to cope with global warming, and provide support to local governments, such as helping them consolidate conditions for the implementation of their measures.

(4) Each ministry and agency should strive to work for broad dissemination of the Action Program, through related organizations so that business and other parties can make positive efforts in line with the Action Program, and take measures necessary to support them, such as by offering of relevant information.

NHTSA and president of Ralph Nader's lobbying group Public Citizen, supports the Bryan bill, which would increase CAFE standards. The two accuse each other of lying about safety standards. At the end of this month they will square off for the first time before an audience of insurance executives in Washington (9/20).===== WORLDVIEW =====

7 file - Japan

*12 LAND CLAIM: CANADIAN INDIANS IN DISPUTE WITH PULP CO.

"Japan's second-largest paper company has ignored demands by Canadian Indians that it not cut trees in a huge tract of forest near the northern Alberta community of Peace River, an Indian leader says" (Edith Terry, Toronto GLOBE AND MAIL). Members of the Lubicon Lake Cree Indians arrived in Japan last week in an attempt to meet with executives of Daishowa Paper Manufacturing Co., but the executives referred them to their Canadian subsidiary. "The Lubicons said [Wednesday] that, as a result of the refusal, Daishowa would probably begin largescale logging by the end of October or early November," writes Terry.

The dispute began three years ago when the Alberta government granted Daishowa, which operates a pulp mill on the Peace River in Alberta, a two-decade forestry management tract which included the 11,000 square kilometer tract of the Lubicons' land claim. But the company has stayed out of negotiations, insisting that the matter is between the Lubicons and the Canadian federal and provincial governments.

The company's president, Tom Hamaoka, says "We haven't solidified or announced our plans to harvest this fall." The Lubicons want the company to settle their territorial claims before they begin logging this year (9/19).

*13 U.K. NUKE SUBS: TWO OF FOUR DECLARED UNSAFE

Two of the U.K.'s four nuclear-powered Polaris subs have been declared unsafe and barred from travel to foreign ports, and others have been given only temporary safety certificates, a television program reported yesterday." A member of the defense ministry's nuclear powered warships safety committee said the fleet is crippled by cracks and confirmed that the committee banned the affected subs from visiting foreign ports without special permission. The cracks occur in welds at the base of the reactor compartment where a pipe carries high-pressure radioactive water into a network of heat-exchanger pipes (AGENCE FRANCE-PRESSE/TORONTO GLOBE AND MAIL, 9/19).

*14 GLOBAL WARMING: WHAT IS THE RIGHT POLICY?

Criticism of the Bush Administration's refusal to set targets and timetables for reducing carbon dioxide emissions as a means of dealing with global warming may be off the mark, says an editorial in today's C.S. MONITOR.

processes responsible for the enhanced production and cycling of methylmercury, especially into fish. While the reasons for this are not completely understood, it appears that the greater acidity, primarily from airborne deposition, contributes significantly to increasing the biomethylation process, thereby enhancing the bioavailability of methylmercury for fish and the rest of the aquatic food chain.

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Key words: acid rain, mercury transport, methylmercury, aquatic ecosystems, bioconcentration

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Two Cases of Pollution in Southeast Asia Caused by Japanese-affiliated Companies

Nobuo Kojima

Japanese companies have made a marked advance into foreign markets. Official Development Assistance (ODA) by the Japanese government has rapidly increased. Unfortunately, however, pollution issues involving Japan have given rise to problems.

In this paper, I would like to report on two cases of pollution: one caused by Asian Rare Earth (ARE) in Malaysia and the other caused by the development of Leyte Island, the Philippines. I participated in the on-site investigation of the actual state of both cases conducted in 1988 and 1989.

Residents Filed Suit Against the Company in Malaysia

Asia Rare Earth (ARE) is an ore-refining company established in 1979 in which Mitsubishi Kasei Co., Ltd. made a 35% investment. The factory built in the suburbs of Ipoh City in northwest Malaysia started operation in 1982. ARE refines and extracts rare earth which is indispensable to high-technology industry, such as yttrium used for red color development for TV, from raw materials including monazite. In the refining process, thorium, a radioactive substance whose half-life is 14 billion years, is produced as a by-product or waste material. The radioactive waste posed a serious problem, and is said to have caused environmental pollution and health hazards.

Local residents in the neighborhood of ARE operations filed a suit against ARE in February 1985, demanding operation shutdown of the factory and compensation for damage. This lawsuit is currently before the Ipoh High Court (at present, in the first trial).

Careless Control of Radioactive Substances

The ARE factory is not in an empty field. The Bukit Merah Village, with a population of 7,000, and a new residential area, with a population of 2,000, are located within 1km. At the back of the factory, right next to the dumping site ground, runs the Serokai River, and there is a small village located 700 m down the river (Fig. 1).

ARE should have taken all possible precautions for the control of radioactive substances during operations, as well as the storage, dumping, and so forth of radioactive by-

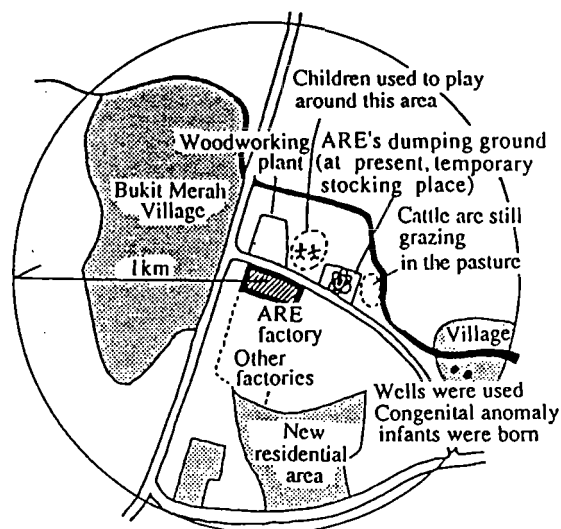


Fig. 1. Map of the neighborhood around the ARE factory.

products. At the same time, public hearings should have been held for the residents and necessary information should have been disclosed prior to initiation of the operation.

In actuality, however, ARE took none of those measures. Neither environmental impact assessment, nor disclosure of the information was provided. To make matters worse, ARE was extremely careless about controlling radioactive substances.

Some residents testified that ARE dumped untreated radioactive waste into the pond behind the factory (the trace of an opencut tin mine), and left it exposed to both rain and wind. The wind-blown and rainwater-beaten radioactive waste was scattered and contaminated the Serokai River and the underground water as well.

Because no warnings were given, children played near the dumping site. Given erroneous information on the effectiveness of the radioactive substance as a fertilizer, some residents took it home to spread in their fields.

Health Hazards and Their Impacts on Residents

Under such circumstances, residents in the neighborhood were exposed to the radioactivity. Children showed reduced counts of monocytes and other leukocytes. Figure 2 shows that the distribution of the blood monocyte level of the children at the Bukit Merah Village, Malaysia, was comparable to the results for the inhabitants of the Marshall Islands, near Bikini Island. Also, the number of miscarriages was three times greater than usual. It is highly probable that the residents had internal exposure to the radioactive substance.

Subsequently, the adverse effects on the residents' health which had been ultimately expected and feared were realized. In 1988, three children were found to have leukemia and, in addition, one case of pediatric cancer and four cases of congenital anomalies were detected.

Community Being Destroyed

The community has started to collapse while residents'

health is deteriorating. Families with children suffering from diseases are straining under huge expenses for health care and treatment, while losing their jobs, as well as hope for the future.

Families have left Bukit Merah and Taman Badrisha one after another for fear of the effects of radioactivity. In the family of Chon Kim Choi (74 years old), one of the plaintiffs, there had once been as many as 15 members, including his three sons' families. However, young couples who felt uneasy about their children's futures left home one by one. In the end, in the fall of 1989, the elderly couple was left alone. He said, "The year I retired from the job after hard work for 30 years, ARE started operations. I have done nothing wrong. Why should my family be forced to live this way?" I cannot forget the sight of his lonely figure, his hand on an unoccupied swing, where many of his family had once played.

Development of Leyte Island, the Philippines

In Isabel, a town in the west of the island of Leyte, the Philippines, a factory complex was constructed in 1983 on the basis of ODA, amounting to more than 30 billion yen in total provided by the Japanese government.

Three companies, including a copper refinery and a fertilizer factory, started operating in the complex between 1983 and 1985. Of these three, the copper refinery is closely related with Japan since a Japanese trading company possesses 32% of its stock and has secured most of its agency. This very close relationship with Japan is also attributed to the factory plant (production facilities) which the Japanese trading company received an order for and sold.

There was fear of potential pollution from the start in view of the operating nature of the copper refinery and fertilizer factory. At present, contamination of the sea and the air pollution around these facilities is extremely serious. Waste water containing substances such as copper, zinc, and arsenic has been discharged, untreated, into the sea, which now has a thick layer of polluted sediment on the bottom.

When I carried out the on-site investigation in August 1989, the sea stank of chemicals and the seawater, whose transparency had once been proudly lauded, had changed to either a deep red or light green (see Fig. 3). The sea was found to be remarkably acidic. The on-site investigation done in August 1988 by Masato Kawada, an assistant professor at Nagoya University, detected a marked value of pH 2.8.

This sea contamination also had an influence on fishery products there. Fishermen complained of a 50% reduction in fish that were formerly quite abundant. They also reported malformed fish, such as those without dorsal fins

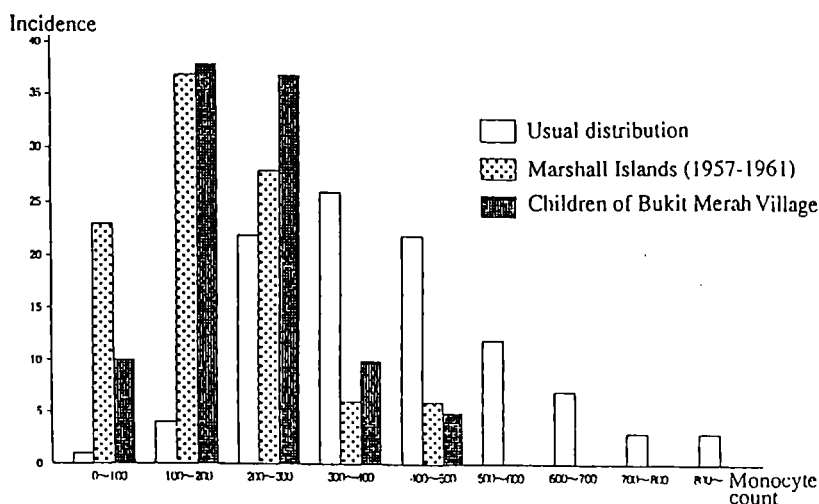


Fig. 2. Comparison of the incidence of reduced monocyte counts in children in Bukit Merah Village.

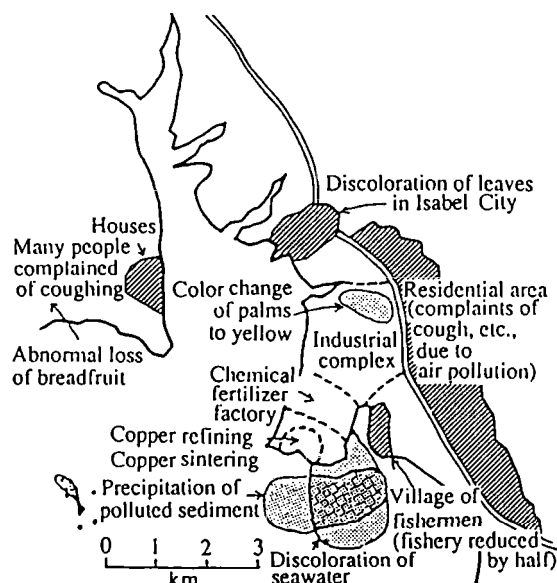


Fig. 3. Actual state of pollution in Isabel areas.

their new addresses are smothered in smoke from the factories. Thus, they have suffered most seriously from the hazards.

Responsible Measures Required of the Japanese Government and Companies

Both of the cases discussed here involve those industries which have been criticized for their generation of pollution. Hence, I cannot but all the more pursue an answer to the question as to why preventative measures were not taken to control the pollution.

For one reason, the local government was careless. Another reason is that the Japanese companies seem to have depended on the governmental policy too much.

The companies concerned deny their responsibility for these respective matters. However, it is believed that urgent measures should be taken from the viewpoints of environmental protection and recovery from the damage.

(translated from *Mizu Joho* Vol. 10 No.8)

or eyes.

The air pollution was believed to be caused mainly by sulfurous acid gas and arsenic that was produced in the copper refining process. As a result, leaves of plants near the factories turned yellow and died, or became markedly spotted. Breadfruit trees bore no more fruit. Also, while interviewing residents, I noted frequent cases of coughing.

No doubt, local development has provided the benefits of increased tax revenues, as well as increased employment. However, few local people were employed. On the contrary, the factory complex development led to the removal of 250 households. Insufficient compensation for their forced moves made life quite difficult for the families who had to take up residence elsewhere. Obviously, the benefits of development did not reach the poorest families: far from it,

Key words: Malaysia, the Philippines, Official Development Assistance (ODA), pollution export, radioactive substances, copper refinery, fertilizer

About the Author

Nobuo Kojima, born in 1959, graduated from Waseda University law school. He is now an attorney, as well as a member of the Japanese Bar Association Committee on Antipollution Measures and Environmental Conservation. He handles cases of pollution export from Japan to Southeast Asia and is representing those who have suffered due to the environmental destruction caused by Japanese development.

Continued from page 2

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Studies of pollution in Japan and other Asian countries.

The Current Situation of the Minamata Disease Case

Citizens' Movement News

Topics include recycling and protest movements against development of resort facilities, particularly golf courses.

Health Risks

An evaluation of health risks to humans of organic solvents in water and air.

Debates

A long-running debate concerning the new technology of on-site home sewage treatment.

水情報

Proposals

Presentation of a new proposal on the management of dams providing water to Tokyo.

Sewage

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Basel Treaty and Rare Metal Management

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Chemicals

The detection of MX, likely the strongest mutagen in drinking water in Tokyo, and dioxine in waste water from pulp and paper mills.