JPRS-TEN-91-007
7 MAY 1991

Foreign Broadcast Information Service 50 ANNIVERSARY 1941 - 1991

JPRS Report

Environmental Issues

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JPRS-TEN-91-007 *7 May 1991*

CONTENTS

WEST EUROPE

REGIONAL AFFAIRS

BELGIUM

DENMARK

FRANCE

GERMANY

IRELAND

ITALY

SWEDEN

SWITZERLAND

Bulgarian Foreign Ministry Expert on Proposed Black Sea Convention

AU1303192991 Sofia BTA in English 1821 GMT 13 Mar 91

[Text] Sofia, March 13 (BTA)—The Black Sea conservation convention, on which the Black Sea countries are now working, may come into force by the end of next autumn, an expert of Bulgaria's Ministry of Foreign Affairs said today. According to him, though delayed by 15 years, this convention stands comparison with the Baltic and Barcelona conventions.

The Bulgarian Foreign Ministry proposed the drafting of such a convention in 1976, but it was only in 1987 that serious negotiations began. They became most intensive in 1990 when three meetings were held in Sofia, Moscow and Bucharest. Another meeting is to be held in Ankara, probably the last before the signing of the document. This will take place at a diplomatic conference and each of the countries will decide at what level to sign the convention.

A standing committee will be set up, comprising one representative from each country, to monitor the observance of the convention and to work out additional measures. Bulgaria, Romania and Turkey are willing to host the headquarters of the committee.

The convention provides not only for cooperation in controlling, avoiding and limiting pollution in the Black Sea, but also for scientific-technical cooperation which will include joint research and exchange of scientific methods and data.

The convention will include three protocols: on countering pollution with oil and other dangerous substances in cases of accidents, on the dumping of materials and substances (this protocol includes two lists of dangerous and of harmful substances), and on land sources of pollution.

Italy, USSR Establish Environment Commission

91MI0087A Milan ITALIA OGGI in Italian 19 Nov 90 p 45

[Text] In the wake of perestroyka, the USSR has joined forces with Italy in the field of environmental protection. The first such agreement between the two countries was signed yesterday, during Soviet leader Mikhail Gorbachev's "mission" in Rome.

The agreement signed by Gorbachev and Andreotti finally marks the beginning of Soviet-Italian cooperation for the economic and technological promotion of environmental protection. The agreement had been expected for some time: Italian Environment Minister Giorgio Ruffolo and his Soviet colleague Vorontsov, in fact, started negotiations back in August 1989.

The implementation of the agreement now calls for the establishment of an Italian-Soviet commission to define specific issues and the projects to be undertaken, and also designate the agencies and officials who are to be in charge. As provided for in the document signed yesterday by Gorbachev and Andreotti, the new joint commission on environmental policy will meet at least once every two years, and one of its tasks will be to establish working teams that will work in single sectors or deal with specific cooperation issues. The agreement, however, reflects the new climate of East-West cooperation by providing for an exchange in delegations, as well as technical-scientific information and, above all, the results of research projects conducted by the two countries on an independent basis. In practice, the agreement primarily involves the development of joint research projects already in progress at the Naples geological station; the collection and processing of information to establish data bases on the state of the environment with "clean" technologies; waste disposal and recycling; protecting coastal and inland waters from pollution; and water treatment methods with particular attention to river basins and specific marine areas such as the Venice lagoon and the Gulf of Finland.

Norwegian Group Alleges Soviet Radioactive Dumping in Barents Sea

91WN0273A Oslo NY TID in Norwegian 2 Feb 91 p 3

[Article by Lilly Naess: "Defense Concealing Soviet Dumping?"—first paragraph is NY TID introduction]

[Text] The Defense Ministry is playing with people's lives and health. Bellona Environmental Foundation is furious about what it calls "suppression and concealment" of the information on Soviet dumping of radioactive nuclear waste in the Barents Sea. "It is reprehensible that the Defense Ministry does not tell people what is happening," Frode Haaland of Bellona said.

It was Norway's Nature Protection Association and researchers at the Norwegian Polar Institute who before Christmas published information on Soviet dumping of radioactive nuclear waste in the Barents Sea. Because of this a work group was established consisting of members of the Environmental and the Foreign Ministry, the Defense High Command, and the State Nuclear Oversight Agency to investigate the matter.

The group concluded that there was not enough proof to state that the Soviet Union had dumped such materials, but it did not rule out the possibility.

At the press conference after the meetings in the combined Norwegian-Soviet Environmental Cooperation Commission a few weeks ago, Soviet Deputy Environmental Minister [as received] Valentin Sokolovskiy denied that highly active radioactive waste in solid form was dumped in the Barents Sea. Such dumping has been forbidden since 1976 according to the London Convention.

Near the Norwegian Coast

"We have information from sources both in the Soviet Union and in the Norwegian Ministry of Defense that in 1985 and perhaps later as well the Soviet Union dumped

nuclear waste of low and medium-range activity in an area near Kola and much closer to the Norwegian coast than the work group investigated," Haaland said. He also pointed to the press conference after the meetings in the combined Norwegian-Soviet Environmental Cooperation Commission, in which Soviet Deputy Environment Minister [as received] Valentin Sokolovskiy said that "from the end of 1986 the Soviet Union has not released fluid radioactive waste of the low activity range."

"Such dumping however has, in accordance with the London Convention, been forbidden since 1983—not since 1986 as Sokolovskiy claimed. This means that he actually admits that the Soviet Union has dumped nuclear waste in violation of the London Convention. We assume that the Defense Ministry is sitting on information, because we have received pictures from the Defense Ministry of the dumping ship—last published in BELLONA MAGASIN—with indications of the amount, where it takes place, and with which ships. This is information that was not presented in the work group's investigative report. We also know that the Environmental Ministry has had an intensive series of meetings with the Foreign Ministry and the Defense Ministry. We do not know whether the Defense Ministry has asked the Environmental Ministry not to publish the information. But the work group's report contains no information from the Defense Ministry," Haaland said. He thinks that the Defense Ministry is neglecting its duty to provide information.

"Defense is playing with people's lives and health. People have no faith in authorities who simply hush things up. This destroys people's confidence," Haaland said. He says that Bellona has been flooded with phone calls from people who are worried.

Malaysian Deputy Prime Minister on Lumber Trade, Environment Linkage

BK0703040291 Kuala Lumpur BERNAMA in English 0319 GMT 7 Mar 91

[Text] Stockholm, March 7 (OANA-BERNAMA)—Malaysia has lashed out at major trading powers for the failure to reach agreement in GATT talks and the increasing tendency of some major industrialised countries to link environmental protection to economic development. The visiting Malaysian deputy prime minister, Ghafar Baba, said Wednesday that such action and failure were detrimental to many developing countries, including Malaysia.

Speaking at a lunch hosted by his Swedish counterpart, Odd Engstrom, he said: "I need to cite only one example, and that is the campaign in European countries to discourage the import of tropical hardwood on the ground that its extraction has led to deforestation and consequent global environmental deterioration."

"To us in Malaysia, it leads to subjective and unfair victimisation of tropical hardwood-exporting countries like ours."

He hoped that friendly countries like Sweden would be able to help in bringing a more objective and balanced approach by the international community, particularly the industrialised countries.

After all, Ghafar said, all must bear their share of responsibility in contributing to environmental pollution in the first place and in assisting developing countries to cope with the problem which undoubtedly affected all mankind.

REGIONAL AFFAIRS

New Environmental Defense Group Formed

91WN0283A Paris JEUNE AFRIQUE ECONOMIE in French Feb 91 p 203

[Article by Antoinette Delafin: "SADE Against Mistreatment of Nature"; first paragraph is JEUNE AFRIQUE introduction]

[Text] SADE has nothing to do with the Marquis de Sade. This nongovernmental organization, established by very serious jurists, is undertaking the defense of environmental law in Africa.

Simultaneously with the holding of a seminar on the international law of the environment in Limoges from 5 to 12 November 1990, participants from 15 French-speaking African countries established an African Society for Environmental Law (SADE). Its purpose is to provide information to governments and to the people as well as to make available its legal expertise in the drafting of national and international documentation related to these different questions.

In the view of Maurice Kamto, its organizer who is a professor from Yaounde [Cameroon], the idea of establishing the SADE has been germinating for a long time.

He recalled: "The idea took shape very quickly and all of the participants joined in with enthusiasm." He said that this nongovernmental organization, the first of its kind in Africa, is of particular importance in view of ECO 92, a large conference that will be held in Brazil, and its preparatory meeting, to take place in Paris in December 1991.

The Grunland report proved that there is no incompatibility between the defense of the environment and development. Kamto explained: "To set up a factory in a given place, it is necessary to make an impact study to determine the long-term consequences on the ecological equilibrium, on health, and on water use. In the absence of such a study, by the end of 10 years it will be discovered that the profits made over a period of five years will no longer be enough to cover the consequences of building this factory." In Africa, for example, cases of pollution are increasing on the whole African coast along the Atlantic Ocean. He continued: "We may come to regret the heavy pollution of the ocean waters in this area. Swimming in the ocean can cause skin diseases, and this pollution of the beaches can make the tourist industry suffer."

In this connection business transactions involved in handling toxic wastes, which has provided material for numerous articles, have been a "revelation." Little concerned about the danger, certain African states collected these wastes along their coasts for almost nothing. He said: "However, they quickly realized that environmental problems were also their concern. Suddenly, they took the bull by the horns and passed a number of laws that severely punish those who violate them."

Maurice Kamto said that, although the majority of the African countries have refused to sign the Basel Convention, "this is precisely because they are tolerant about one point: the traffic in waste products." However, the Cameroonian law on the subject, passed in 1989, is now the most stringent. It provides for capital punishment against anyone who "introduces, circulates, or stockpiles toxic or dangerous wastes on Cameroonian territory." On the other hand Malian legislation only provides for prison terms or fines for similar offenses.

At the seminar in Limoges debate revolved around prison punishment. Maurice Kamto said: "One of the weaknesses of environmental law is the absence of effective punishment. Now a law without teeth in it is necessarily lax and weak." He said that this is why the majority of the conventions signed by the various countries are a form of "dormant law." Moreover, what possibility is there to force a country to apply a convention to which it has committed itself? The Italians proposed the establishment of an international court on the law of the environment. Kamto said: "This is a little utopian. Since 1982 we have seen the difficulties of establishing a court of this kind to deal with the law of the sea. However, the idea is important and deserves to be examined more thoroughly."

Kamto concluded: "Finally, let us not forget that the protection of natural resources also involves the protection of the primary forest, which is the largest storehouse of oxygen and hydrogen in the world. It is a complete ecosystem, with its animals, its insects, its fauna, and its flora." It is an ecosystem that is being destroyed for agricultural purposes. These forests are difficult to reconstitute, and their destruction may be irreversible. He said: "It is true that you cannot make farmers stop doing this without giving them an alternative. It is a matter of their survival."

ANGOLA

Kwanza-Norte Deforestation Worries Authorities

91WN0278A Luanda JORNAL DE ANGOLA in Portugal 8 Feb 91 p 3

[Excerpt] Ndalatando—The provincial agent for agriculture in Kwanza-Norte, engineer Garcia Andre, recently expressed concern over the persistent destruction of the forest by the population, which is using wood in order to convert it into charcoal.

In view of this behavior, during the past 15 months the Kwanza-Norte Provincial Directorate of the Forest Development Institute [IDF] has imposed penalties amounting to 237,245 new kwanzas, and brought 18 suits against people who violated the environmental regulations.

In an interview with Angop [Angolan Press Agency], the provincial director of the Forest Development Institute, Jose Domingos, claimed that, during 1990, 3,000 trees were planted in the towns of Dondo and Ndalatando.

The IDF has called for the creation of "village woods," sites where the population will be able to obtain firewood and charcoal in the future.

Meanwhile, the director revealed that, as part of the tree planting program aimed at counteracting the flora destruction, during 1990 the creation of the first forest complex was initiated in the village of Kirima, nearly 18 km from Ndalatando.

Jose Domingos noted that, since last August, the germination of 60,000 different plants in nurseries to provide for this program has been underway. As part of this plan, 25,000 forest and shade trees are due to be planted by April in the municipalities of Kazenga, Lucala, and Cambambe.

Also according to the IDF provincial director, the initiative is aimed essentially at avoiding an ecological imbalance from the constant devastation of flora. It includes the growing of orchards and shade trees at schools. [passage omitted]

Official Warns of National Flora Degradation

91AF0708F Luanda JORNAL DE ANGOLA in Portuguese 5 Feb 91 p 2

[Text] The flora of Angola is in the process of degradation, which could have unforeseeable ecological consequences, Engineer Garcia Andre, provincial delegate of the Agriculture Ministry in Kwanza Norte, warned in N'Dalatando.

Speaking on the occasion of National Earth Day, celebrated on 31 January, the provincial delegate based his statement on the growing devastation of the flora by a part of the population that is destroying it for uses that are incompatible with a balanced ecology.

As an example of negative acts committed by man, Eng. Garcia Andre cited the "Morro do M'binda" (about 20 km from N'Dalatanda), where the forest is being cut down indiscriminately, for the lumber, for charcoal, and to plant crops.

Unless appropriate and timely measures are taken, he said, he fears that the country's forest resources will experience a serious level of destruction.

The provincial official reiterated the need for concerted community efforts in reforestation and the planting of trees in public areas.

BOTSWANA

Wildlife Endangered by Cordon Fences

91WN0293A Cape Town WEEKEND ARGUS in English 26 Jan 91 p 8

[Article by Ken Vernon]

[Text] Maun.—In this frontier town of hard-bitten individuals they don't come any more hard-bitten than crocodile and elephant shooter turned professional hunter Willie Phillips, the most unlikely conservationist you are ever likely to meet.

Willie calls a spade a shovel and there is no doubt about what he feels- -and at the moment he feels strongly about a fence—and about cows.

"Man, cows are eating this country down to the bones. It something is not done there won't be a damn single wild animal or a blade of grass left in ten years time."

Pristine Wilderness

The immediate object of Willie's wrath is a veterinary cordon fence, commonly called a buffalo fence, being built from the northern fringe of the Okavango Delta round a pristine slice of wilderness called the Selinder spillway, and north-west to the Namibian border.

The purpose of the fence is to separate cattle which are intruding into the area from wildlife already there. This separation is required by the European Economic community—a R100-million a year market for Botswana beef—purportedly to prevent the wildlife infecting cattle with the dreaded foot and mouth disease.

But the fence will turn almost 11.5 million hectares of what is now a retreat for some of the last great herds of game into cattle country, and in the minds of many destroy the ecology of the area. In turn it will have a catastrophic effect on the "panhandle" area of the Okavango Delta.

Combined with similar fences to the south, west and east, it will also virtually isolate a truncated Okavango Delta, turning it into the last refuge of what might remain of those great herds. And inevitably they too will fall to the demands of the beef barons.

For if there is one thing that everyone in Botswana agrees on—and it is probably the only thing—it is that the demands of the cattle industry take precedence, whether anyone likes it or not.

The aim of virtually every Batswana is to own cattle—as many as possible. Cattle represent not only wealth, but prestige, social status and political clout. The leaders of the cattle industry are the leaders of government.

Yet a number of Batswana are becoming increasingly concerned over the depredations of the cattle industry on the environment and on Botswana's unique heritage of wildlife.

These same people recently won a small victory by forcing the postponement of a government scheme to dredge the lower reaches of the Okavango, but they now face a much tougher fight, even with the international environmental groups they have enlisted in their support—against a fence designed to promote cattle.

Migration Routes

Their concerns are fourfold:

- That little understood migration routes and breeding

cycles of game in the area will be severely disrupted.
- That the cattle with their voraciously indiscriminate appetites will destroy the sensitive ecology of the grasslands to which the game seasonally migrates.
- That the fence will trap thousands of animals on the "dry" side, repeating haunting scenes played out in the early 1980s when tens of thousands of wildebeest died—trapped against a buffalo fence that cut them off from seasonal watering holes.
- That the cattle will destroy the reedbank ecology of the Okavango River at its most sensitive point—where it enters the delta—allowing it to surge in at greater velocity, carrying silt normally filtered out by the reedbanks, causing massive damage to the wetlands downstream.

These concerns could have been addressed by an environmental impact study of the fence, but no such study has been carried out.

Mr. Nigel Hunter, Director of the Botswana Department of Wildlife, admits that the fence is aimed at allowing cattle into what is designated a wildlife area. But he says the government turned down a demand by local people for an additional 800,000 hectares of land for cattle.

He disputes that migration and breeding patterns of wildlife in the area will be drastically affected, and says there is sufficient "local knowledge" of the area to make an environmental impact study unnecessary.

"Wildlife will e affected, that is unfortunately inevitable, but the fence will not be 'wired' until the game returns to the delta at the beginning of the dry season," he says.

It is this deference to the cattle industry that has allowed an estimated 3,000 km of cordon fences to be built, often cutting historic wildlife migration routes and even bisecting villages.

Yet ironically it is generally admitted that fences do not stop foot and mouth disease.

Experts now believe the disease to be carried not only by buffalo, but by small animals that easily slip through the heavy fences, by insects, and even by the wind.

In the last two decades, despite a dramatic increase in the number of fences, Botswana has had four outbreaks of foot and mouth.

But fences not only keep wildlife out, they keep cattle in. As the cattle population continues to boom to almost three head per person, cattle areas are being turned into desert by animals not designed for the fragile Kalahari ecology.

Unlike wildlife, cattle do not migrate, so as one area is ravaged into desert, another has to be opened. Satellite pictures show desert areas spreading like smallpox pustules across the land, radiating from boreholes drilled into Kalahari grasslands to supply cattle needs.

"I feel the government is carving up the country willy-nilly on the artificial basis of the subsidy that allows Botswana beef into the EC at a 90 percent tariff discount" says the chairman of the Okavango branch of the Kalahari Conservation Society, Mr. Paul Scheller.

"If that subsidy were to be revoked, and given the events in Europe and the Middle East it could be, then the Botswana cattle industry might collapse like a house of cards."

Why then does the cattle industry continue to expand?

One reason is that it is encouraged to do so by international agencies such as the World Bank, which argues, despite evidence to the contrary, that the industry is good for Botswana.

No Profit

Another reason could be that the people who make the decisions, are those who most benefit from the industry.

At present the World Bank is financing a scheme, its third, aimed at increasing livestock production by supplying credit for further development of 130 commercial cattle ranches, despite reports by its own investigators that a previous scheme that also aimed to develop the ranches was a complete failure.

All 130 ranches defaulted on loan repayments and the scheme reportedly made no profit for the country at all.

Of those 130 ranches, a large proportion are owned by rich cattle barons, many of whom are also in government.

It is these few who benefit mostly from the World Bank and EC schemes, because only they utilise cattle herds for profit.

Most Batswana are what Paul Scheller calls "prestige ranchers." They breed cattle not for profit but for status.

KENYA

Air Pollution Threatens Nairobi Residents

91WN0276A Nairobi DAILY NATION in English 9 Jan 91 pp IV, VII

[Article by Ngugi wa Mbugua. First paragraph is introduction. Words in italics as published.]

[Text] From an elevated position, one can see the hazy coat of pollutants looming over the city and endangering thousands of residents.

From the 25th floor of Nyayo House or some other lofty position in Nairobi, one observes a positively gloomy picture—a hazy veil that looms over the city as if offering it some form of protection.

But the bluish-black veneer is not protecting the thousands of people below it. On the country, the misty cover lazing over the skyline represents a sickening state of affairs. It is a manifestation of the tonnes of air pollutants that Nairobians are steadily liberating into the atmosphere.

The haze is barely visible from ground level. But from an elevated position, it is visible at all times of the day but much clearer at day- break and early evening. It is well pronounced in the city centre but more over the Industrial Area to the south and less to the eastern and northern suburbs.

The hazy veil, says a senior environmental expert with UNEP's Global Environment Monitoring System (GEMS), is the melting point of all forms of air pollutants in the city.

He is convinced that the city is under siege from gaseous substances whose toxic property spells doom for all.

The expert, who for reasons of protocol wishes not to be named in this article, contends that automotive pollution is the biggest culprit of them all.

On chilly and foggy days, a visitor in the city would be forgiven to conclude that, Nairobi, like Europe, experiences smog. This is because of the intensity of the gloomy veil hovering above the skyline.

"There cannot be smog in Nairobi, or anywhere else in the tropics as the temperatures are not cold enough," the GEMS man says.

That leaves exhaust fumes belched out by automobiles, smoke from factories and dust from the many construction sites as the main sources of the haze. "There is no myth about it—that the atmosphere in Nairobi is heavily polluted," he says.

If a sample of the haze could possibly be taken for chemical analysis, traces of all these substances would be detected, the UNEP man adds.

He gives other indicators of air pollutants as eye irritation and sneezing which he says are common especially in the central business district of the city.

Eye irritation and sneezing are a probable sign of the presence of a wide range of pollutants emitted by motor vehicles. These include sulphur dioxide, hydrocarbons and other volatile organic compounds.

The UNEP man suggests a simple experiment which could further establish the presence of pollutants in the city. The surface of a desk left clean and in a dust-free room can be legibly inscribed on after 24 hours. "The surface would have a mixture of all sorts of pollutants," says the GEMS man.

Motorists in certain residential areas neighbouring factories often complain of a greyish ash-like deposit they find on vehicle body-work and other metallic surfaces in the morning.

A motorist residing in the Eastland's Pioneer Phase Two estate, thinks the source of these deposits is a local factory where, at night, old tyres are burnt to extract wires.

Meanwhile, the UNEP man says that many vehicles on city roads cannot pass the test of pollution emission standards. "Most of the so-called reconditioned cars which are pushed into developing countries cannot pass pollution standards test in the countries from where they are imported," the expert adds.

He decries the lack of a systematic anti air-pollution law enforcement practice in Kenya. "We have proper legislation but some of those who are supposed to enforce the laws are caught in the web of disobedience," he says.

Matatus and buses appear to be in the forefront of automotive air pollution. Daily, they spill forth lots of diesel and petrol exhaust fumes into the atmosphere.

A paper titled AUTOMOTIVE AIR POLLUTION *(Issues and options for developing countries)*, lays bare the adverse effects of exhaust fume emission. The paper was prepared for the World Bank last August by four environmental authorities, Asif Faiz, Kumares Sinha, Michael Walsh and Amiy Varma.

Some of the effects of pollutants from motor vehicles on human health are, to say the least, startling according to the paper:

Carbon monoxide, which is present in nearly all fuels, impairs perception and thinking, slows reflexes, causes drowsiness and can cause unconsciousness and death. It also affects foetal growth in pregnant women and tissue development of young children. "It is associated with less worker productivity and general discomfort," the four experts write.

One of the best known and contentious pollution agents in automotive fuel is lead which is added to some grades of petrol, notably premium, to make it lighter and hence quicken the process of combustion.

According to the paper, lead, a heavy malleable base metal, affects circulatory, reproductive, nervous and kidney systems.

Lead, which is ingested through the lungs and the gastrointestinal tract, is suspected of causing hyperactivity and lowered learning ability in children.

Last November, a lecturer in the Nairobi University's Geography Department, Erastus Irandu, proposed the reduction of the amount of lead in fuel sold in Kenya.

Irandu recommended that the level of lead be reduced from 0.4 gm per litre to about 0.15 gm per litre in fuel sold in Kenya. This, Irandu said, would curb environmental pollution by motor vehicles.

His proposals were contained in a paper titled URBAN TRANSPORTATION AND THE ENVIRONMENT which he presented at the United Nations Accommodation Centre in Gigiri, Nairobi.

Irandu suggested that alternatives be sought of fuels to further reduce vehicular pollution. His paper also suggested the introduction of maximum limits on pollutant emissions for motor vehicles.

Most vehicles are poorly maintained which result in the emission of air- polluting substances through use of leaded fuel.

The GEMS man is agreeable on this point. "Lead might be good for motor vehicle engines but, certainly, not for the environment," he says.

In some developing countries, mainly Latin American, lead pollution was so severe some years back that children had to be treated for blood contamination. Others had to be immunised to eliminate toxic agents from their blood.

In some cases, it was found necessary for babies to undergo total blood replacement because of the contamination by lead and other toxins.

Going by the consistence by which air is polluted in Nairobi and other urban areas of Kenya, the health situation could be approaching similar critical proportions.

The UNEP environmental expert adds that city workers and dwellers are likely to suffer from the effects of in-door combustion.

This means that air pollutants from automobiles and industries get pent up in rooms exposing those inside to hazards inherent in inhaling dust and exhaust fumes raised by vehicles and from the many construction sites and factories.

He says, trees and other plants help absorb the potentially pollutant carbon dioxide. But with the reduction of trees through massive development of the city, carbon dioxide is instead absorbed by human beings.

Meanwhile, the UNEP man states that majority of factory owners in Nairobi do not adhere to basic pollution emission standards. "Each year, they eject millions of tonnes of pollutants into the air," he says.

The effect of this, he says, is felt not only in the city, but beyond its frontiers. Smoke emitted through a factory chimney in Nairobi can be conveyed many kilometres downwind. "This means that people outside the city suffer from sins we commit here," he adds.

The configuration (outline) of the city, he says, is such that people in certain areas suffer more from a polluted environment than others elsewhere.

For instance, pollutants in the atmosphere above Mathare valley, form a canopy which leads to people living or working below suffering lack of adequate oxygen. "In such cases, there is danger of such people experiencing physiological discomfort," the UNEP man says.

He adds that tall buildings as are found in the city centre, inhibit the circulation of air much to the chagrin of those below. There is no free-flow of these pollutants as tall and haphazardly sited buildings trap it between them in the absence of cross-ventilation provision.

The UNEP man suggests stricter enforcement of rules on automobile and factory emission standards.

- Traffic police should ensure that vehicles, whether old or new, are regularly serviced. Imported vehicles, whether new or reconditioned, should be thoroughly examined by the Motor Vehicle Inspection unit.
- Environmental authorities should formulate and enforce the implementation of vehicle and factory emission control programmes.
- It should be mandatory for factory owners to treat toxic fumes before liberating them into the atmosphere. Legislation should be specific on standards, the environmental expert emphasises.

Most developed countries, he says, strictly enforce rules and regulations on what may or may not be ejected into the atmosphere.

Meanwhile, the paper prepared for the World Bank by the four experts talks of the need for clean automotive fuels.

It recommends the reduction or substitution of lead in gasoline and reduction of sulphur in diesel.

The ball is squarely in the court of the National Environment Secretariat (NES) and other relevant authorities. These and other recommendations should be treated with the seriousness they deserve.

MOZAMBIQUE

Ivory Poaching Network in Cabo Delgado Outlined

91P40188A Maputo NOTICIAS in Portuguese 1 Mar 91 p 1

[Text] Elephant poaching and ivory trafficking are reportedly increasing in Cabo Delgado Province. A source from the Pemba Wildlife Service informed the MOZAMBIQUE INFORMATION AGENCY on Tuesday that the situation has reached "alarming proportions."

Armando Cossa, assistant technician at the Wildlife Service, said that authorities lack the necessary means to arrest traffickers.

Elephant poaching has lately been concentrated in Mueda District, in the northern part of the province. According to Armando Cossa, those responsible for the poaching are not only ordinary citizens involved in the trafficking of ivory but also members of the armed forces, including officers.

Cossa added that military commanders "mined" the Mueda region with elephant poachers whom they direct and protect. "That is why nothing can be done about it, because those responsible are in positions of authority," he said.

Armando Cossa considers groups of armed militiamen, dispersed throughout the area, as the "most dangerous." He ascertained that these militias enter the forest and hunt elephants without anyone controlling them. The

same source did "leaders" who give orders to the groups of militiamen and who are devoted primarily to elephant hunting.

The presence of Tanzanian poachers has also been discovered. They reportedly enter Mozambique illegally and make their way to the forest to hunt. Armando Cossa said that Tanzanian involvement is frequent and that "they are very aggressive when surprised in their activities."

The source reported that the Tanzanians enter Mozambique by crossing the Rovuma River with the pretext of fishing, but instead engage in elephant poaching in the forests of Mueda. The elephant tusks are transported via three routes from Mueda. According to Armando Cossa, some are smuggled in Pemba, another portion in Tanzania, and the third is transported to Maputo. The source did not explain the entire process, but confirmed that the poachers have a "very organized system" which allows them to smuggle tusks anywhere. The contrabandists are now also transporting elephant meat to Tanzania.

Five elephants were slaughtered in the vicinity of Pemba in August 1990. The source maintains that the tusks, as well as the meat, were carried to an "unknown place by persons unknown."

The Cabo Delgado Department of Wildlife does not have statistics on the number of surviving elephants in the province because an aerial survey of the wildlife reserves has not been conducted in the past 10 years.

NIGERIA

Government Warns Against 'Indiscriminate' Waste Disposal

AB2103154991 Lagos Domestic Service in English 2100 GMT 20 Mar 91

[Text] The Federal Government has warned that it will no longer tolerate the practice of certain companies, mulitnationals, and individuals indiscriminately discharging (?deposits) into the environment. The minister of works and housing, retired Major General Mamman Kontagora, gave the warning today in Lagos while launching the guidelines of standards for environmental control in Nigeria. He described the action as not only criminal but callous. General Kontagora stated that government will henceforth lay down stiff punishments on indiscriminate deposits of hazardous and municipal wastes.

The minister observed that indiscriminate waste disposal from homes, farmlands, and industries was as dangerous as waste deposited down into Nigeria from extraterritorial sources. He directed the Federal Environmental Protection Agency to ensure that the provisions of Decree 58 of 1988 were fully evoked on erring companies which deliberately flout the guidelines.

In his speech, the director of the agency, Dr. Evans Ainoh, said the guidelines of standards were appropriate and relevant to the Nigerian situation. He noted that the Lagos area, with over 70 percent of the nation's industries, stood the risk of the being irreparably degraded by uncontrolled discharge of industrial (?deposits) and pollution.

Rubber Factories Pollute Bendel State Air

91WN0287A Lagos SUNDAY TIMES in English 27 Jan 91 p 21

[Article by Samuel Abasilim: "Air Pollution in Bendel"]

[Text] The dangers of various forms of pollution to human existence from industrial plants cannot be overemphasised. Not only do these pollution endanger the body systems, most times, its physical problem occasioned by its discomforting nature are enormous and very mush agonising.

Little surprise then, that the former Commissioner for Information and Culture in Bendel State, Dr. Isaac Ikoyo-Eweto called on the Federal Government to impose strict penalties for industrial pollution being perpetrated by industries. This, he said, will minimise environmental hazards caused by pollution as the concerned industries will take little care in trying to find solutions to it.

Dr. Ikoyo-Eweto had said that these industries have been discharging dangerous chemical wastes, garbage and affluent without regard to the protection of the environment.

He noted that the several forms of pollution was posing environmental hazard to the immediate communities, adding that his sordid development must be put to a stop by the firms which should devise adequate means of disposing of waste materials.

In Bendel, all forms of pollution are witnessed from these industrial plants. Most offensive is the odour emitting from rubber processing plants in the state. It is now usual for one to be choked up in areas where there are rubber processing plants in the state.

The offensive odour is most irritating and agonising as one passes through these plants or vehicle conveying the raw lumps of rubber. In Benin, Iyanomo, Ologbo and various parts of the Bendel Delta, where these rubber processing plants are located, the ammonia-like odour of these areas are a permanent feature.

This is certainly affecting the immediate communities as it has the capability of causing health hazard apart from its mere air pollution.

SOUTH AFRICA

New Environment Minister Discusses Position

91WN0295C Cape Town WEEKEND ARGUS in English 26 Jan 91 p 8

[Article by Graham Lizamore]

[Text] The new Minister of Environment Affairs will not allow the image of South Africa to be tarnished "just for 40,000 seals."

Interviewed in Cape Town this week, Mr. Pienaar said he realised seal culling was internationally sensitive.

"Looking at it holistically, I am not going to allow the image of South Africa to be tarnished, especially in these critical times when we are moving away from sanctions and we want the world to accept our bona fides."

'No Final Decision'

He said no final decision had yet been taken because he still needed to study the question properly—which is evidently his management style.

If I was on an Iraqi supply ship trying to get past the American fleet in the Gulf I would hope that the captain will be someone like Louis Pienaar.

Of course the ship will get hit—but as in the apocryphal Birkenhead saga there will be little panic. As master of the beleaguered vessel he will patiently wait for reports from the engine room and calmly issue orders until under the sheer weight of bombardment, the ship silently slips under the ocean.

Mr. Pienaar, a dapper, good-looking man, appears nonplussed that he has been given the job of handling black education too—a system resented, and a system in which the soaring failure rate among matriculants can only be described as a time bomb; a system in which thee are not enough schools, not enough teachers, not enough books and certainly not enough time.

As if education is not enough for one mortal to handle, Mr. Pienaar has been given the portfolio of Environment Affairs—from which the previous incumbent was ejected because the "greens" gave the Nationalist government a hard time.

Conservationists bayed for the former minister's head when Eastern fishing vessels were allowed into harbour with gillnets. Even the belated increase of up to a million rands in fines for offenders could not save Mr. Kotze.

There is also the matter of a myriad homelands and independent states where the level of poverty is exceeded only by the daily destruction of what precious little arable land there is in South Africa.

Another sore point is toxic waste, which industrialised Europe would happily dump on our doorsteps. Add to that over-population, unemployment and the reality that no matter what the cost, the economic engine of South Africa must be hand-cranked into life, and the job assumes monumental proportions.

I asked Mr. Pienaar if it was not ironic that one man, a junior cabinet minister at that, should be given these two historically neglected and hence explosive portfolios.

"Yes, they are important and yes, they will be receiving urgent attention, like all other matters. But there are others equally important, like the constitutional process we are going through at the moment."

The Minister of Environment Affairs could not act in isolation, he said.

"He is part and parcel of a collective responsibility in respect of the management of all the affairs of the State," he said.

He did reveal that in both education and environment "soul-searching" investigations had been conducted and reports were being finalised. Important announcements could be expected within the next six months.

"We are eagerly awaiting the results of these investigations," he said.

Mr. Pienaar admitted that there were certain "tensions" among members of the Council of the Environment who were disillusioned because their recommendations had often been ignored. In terms of the Act, the Council had to fulfill an advisory role to the Minister of Environment Affairs, he said.

Coastal Management

"I believe it has fulfilled that role admirably, particularly on coastal management and the integrated environmental management guidelines available to industrialists and developers throughout the country. I am expecting a very close and healthy relationship with the Council," he said.

Mr. Pienaar said he saw the role of the Department of Environment Affairs as that of a watchdog.

"I can assure you that for as long as I am here, any sensitive issues brought to the attention of my department will receive priority attention."

Mr. Pienaar said frankly people should not expect him to become an environmental bigot. He believed the objective should not be conservation for conservation's sake but to maintain the sustainable use of resources.

"Awareness of the environment will be found in first world communities where the quality of life plays an important role...so in order to establish such an awareness, such a quality of life, you have to utilise resources to create wealth in order to increase the living standards."

Management of the environment is being investigated by the President's Council and a report on its deliberations would be available by mid-June, he said.

Challenged on whether he would have the teeth to stop his perhaps less environmentally aware colleagues from going ahead with ecologically harmful policies, Mr. Pienaar said he could insist on environmental impact studies.

Nationwide Survey on Environmental Awareness
91WN0296A Johannesburg THE STAR in English 7 Feb 91 p 21

[Article by James Clarke: "These Are Our Worst Nightmares"]

[Text] The "population explosion" is the greatest perceived threat to the future of South Africa in the eyes of South Africans of all colours. Pollution, especially air pollution, comes second.

According to a survey—Project Ecos, just published in Johannesburg by MRA, the marketing survey firm—most educated whites, blacks and Indians are personally concerned about the unknown effects of ozone depletion and global warming.

Project Ecos is an on-going nation-wide survey which explores the South African public's awareness and knowledge of green issues and provides insights into why, when it comes to the environment, some people destroy and others conserve.

The first two phases of the study consisted of a series of group discussions and a nationwide "area-stratified" random sample.

It tested nine groups, each consisting of 12 people.

Four groups were from the white community (well-educated adults, poorly educated adults, students, schoolchildren); three groups were from the black community (well-educated, poorly educated and schoolchildren); there was one Cape Town coloured group (well-educated professionals) and a similar Indian group from Durban.

Before the question of environment was raised among the respondents—they were interviewed in segregated groups and in their own language—they were asked what issues were most "worth working for" in life.

Not one spontaneously mentioned environment.

But when the subject of environment was mentioned, one in five of whites, Indians and coloureds said they viewed "environmental deterioration" as the most serious problem facing South Africa today.

Only eight percent of blacks agreed with this line.

Respondents listed, in the words of the survey, the following issues as being "worth working for"; world peace, no war, success, money, money in the bank, independence, freedom, career, good employment, happiness, housing, food, family and honesty and integrity.

The survey found that "challenges on the political front (made) respondents unwilling to classify environmental and ecological issues as the most pressing they are facing. (But) ecology was seen as very important, with the majority showing concern and keenness to become more knowledgeable about the subject."

Most whites put security aspects highest in their list. Blacks generally put education at the top. Poorer blacks put food and housing as first priorities.

When it came to purely environmental issues the poorer groups saw air pollution and litter in their immediate vicinity as the pressing issues. The more educated the respondent, black or white, the more likely he or she was to look beyond immediate surroundings.

The second phase of the study was scientifically chosen to represent 90 percent of whites, and 90 percent of urban blacks.

Nearly all respondents showed concern and awareness and believed the planet was threatened but most felt the problems were "too big and confusing" for them to do much about personally.

They mostly held industry responsible for global damage and felt industry should be cleaning up the mess.

The great majority of all respondents thought industrial polluters should be exposed and even more thought they should be fined.

When it comes to development, said the survey, all the groups felt that Environmental Impact Assessments (EIAs) should be done on major developments and should be carried out by impartial and independent agencies.

While most named general pollution, pollution of air, pollution of water, litter, forest destruction and species extinctions as being issues which affect society, only a few thought the misuse of water, soil erosion and noise pollution were important.

When asked what environmental aspects specifically threatened this country, most respondents felt South Africa's gravest threats were the same as the world's. "Only one or two felt different issues were involved."

Threats singled out by the better educated groups as specifically relevant to the South Africa situation were the threats being put on "declared natural areas like Kruger Park and St Lucia"; dumping of toxic waste (specifically mercury) and the lead content in fuel.

People generally were concerned at the failure of the education system when it came to environmental awareness and the white well-education group was prepared to give money towards environmental care and said the money was best directed towards environmental education. The need for more information was repeatedly mentioned.

Most said they were influenced to care about the environment by their parents but were also influenced by newspaper articles and television programmes (specifically mentioning the SABC's [South African Broadcasting Corporation] 50/50 programme).

Blacks, coloured and Indians and low-income whites all declined to name issues which they felt posed little or no threat. But the "well-educated" white group and the

students and scholar groups named vanishing species, vanishing black rhino (specifically), soil erosion, soil pollution and noise pollution as being "not particularly threatening."

Asked if they worried about what sort of world their children and grandchildren might inherit, most were worried about future educational standards and political aspects.

"Other race groups were more pessimistic than whites. They felt pollution could shorten their children's lives, that 'everything will be artificial' and 'all nature will disappear' and that the population explosion would spoil natural areas with children having to play on dumping sites."

The greatest ecological threat to South Africans by the year 2020 was perceived as the population explosion, with pollution second, followed by nuclear weapons, chemical waste being dumped in South Africa—and AIDS.

What the Experts Think

Most environment experts believe the greenhouse effect is Earth's biggest threat, with the ozone hole a close second.

Most experts (75 percent) questioned in the Project Ecos environmental awareness survey named air pollution as a major South African problem while 55 percent gave sociopolitical problems as another major challenge, followed by overpopulation (50 percent).

Globally: 70 percent named global warming as a major threat and half saw ozone damage and air pollution generally as major threats.

In descending order they named overpopulation, over-exploitation of non-renewable resources and soil erosion. Water pollution came last.

One in five said AIDS was a major global issue.

Most said "disaster" would follow inaction on these issues.

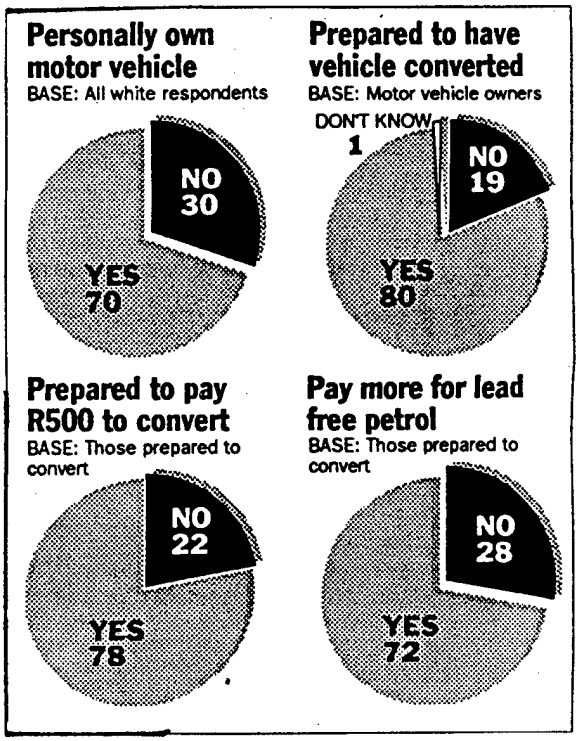
Locally: After air pollution, sociopolitical problems (apartheid, poverty, etc.) and overpopulation, around half the experts listed soil erosion and waste disposal as major threats. (The poll showed that the general public was mostly unconcerned about soil erosion.)

Most professionals felt education and the mass media would be the most effective way to make people aware and to turn the situation around.

Some supported an environmental protection agency similar to America's.

Cleaner Air Is a Vital Issue

More than one in two South Africans are prepared to pay substantially more for cleaner air. More than one in two are prepared to pay more for electricity if it means less pollution.



And 78 percent of white car owners are prepared to pay R[rands]500 to have their cars converted to cleaner fuel, while 72 percent want lead-free petrol.

These were among the findings in Project Ecos, a national survey to test South Africa's environmental sentiments.

Asked if they were prepared to pay more for electricity in order to have clean air, 52 percent of blacks, 56 percent of coloureds, 59 percent of Indians and 61 percent of whites agreed or partly agreed.

When it came to global issues the issue that most South Africans are aware of is air pollution—more than 90 percent of whites, Indians and coloured were aware of the problems, while among blacks the figure was 64 percent.

Acid rain interested 69 percent of whites but only 9 percent of blacks. Only 15 percent whites and two percent of blacks were worried about it. Air pollution in general "personally concerned" 59 percent of whites and 31 percent of blacks.

Waste Dump Near Katlehong Poses Health Hazard

91WN0295B Johannesburg THE WEEKLY MAIL in English 25-31 Jan 91 p 4

[Article by Eddie Koch]

[Text] Children, attracted by dumped sweets, are playing in an illegal waste dump contaminated by discarded syringes, blood transfusion bags and other toxic waste.

The dump is near Katlehong on the East Rand.

Shocking pictures and details of this and other dumps, which medical experts agree can pose serious health hazards, were released by the Johannesburg branch of Earthlife Africa at a press conference yesterday.

Says Henk Coetzee, a representative for the environment activist group: "The Katlehong dump, listed as a sports ground on official maps, is a playground for local children who eat sweets dumped by a Wadeville company and play barefoot amongst broken glass, domestic waste and used syringes, needles, drips, blood bags and other medical waste bearing labels from Natalspruit Hospital and Highveld Blood Transfusion Service."

Dr. Norman Kearns, superintendent of the Natalspruit Hospital, told THE WEEKLY MAIL he had no reason to doubt the veracity of Earthlife's report and had taken the matter up with an East Rand company, called Multi-Waste, which has a contract to dispose of medical waste from the hospital.

No comment was available from Multi-Waste at the time of going to press. Professor Hendrik Koornhof, deputy director of the South African Institute for Medical Research, said the dumping of used syringes and needles on open sites was a serious offence that could endanger the health of people living near or on the dumps.

Koornhof said there was a very small risk these products could contaminate people with the AIDS virus. He added, however, that this was not probable because the virus has a very short life once exposed to air. The chance of contracting other blood-borne diseases, such as Hepatitis B, from the products was greater.

"The law requires that all bio-hazardous waste is incinerated or stored in a landfill isolated from the public," said one informant.

"But it is standard practice for blood transfusion units to dump waste products, sample bottles and used plasma at unguarded municipal sites on the Reef."

Doctor R. Crookes, deputy medical director of the Transvaal Blood Transfusion Services denied this. He said all products that test positive for any form of infection are incinerated.

Used transfusion bags could not be classified as bio-hazardous material because the contents are rigorously checked for contamination.

However Crookes confirmed that needles used for taking blood from donors are not incinerated and are disposed of in a Class 2 or Class 3 landfill sites without being checked for infection. Class 2 and 3 sites are not strictly isolated from the public.

Earthlife discovered the conditions at the Katlehong dump after being asked to investigate by the township civic organisation.

"Local residents recall how the dump, initially a clay quarry, was used more than 20 years ago by factories in Wadeville as a dump site, possibly for toxic chemical waste," the organisation's report says.

"After children developed a rash from playing on the dump, the local authority promised to cover it and build a soccer stadium. This never materialised and the site is still used for dumping."

Katlehong City Council engineer Chris Hatting said the site was shut down last year and all dumping there is now illegal. But Earthlife says its members witnessed a Post Office truck from Wadeville discarding piles of waste on the site.

In November last year an Earthlife member discovered an illegal dump at an abandoned factory site, now occupied by homeless people, at Ulana Park in Germiston.

"We found a large number of drums both inside and outside the perimeter fence of the factory," the organisation said. "Many of the drums contain toxic chemicals and most are leaking. Some of the drums have health warning stickers on them."

A team of activists found an unknown operator burning drums of waste in the veld along the banks of the Elsburgspruit on the East Rand. Toxic heavy metals are leaking from a dump on the site and contaminating the river.

"This situation is only the tip of the iceberg. Chemical analyses have shown large amounts of toxins in this stream. On a later visit, all the drums on the site had been emptied and removed, leaving only piles of ash, pools of oil and other waste lying in the veld."

The disclosures come hard on the heels of a report by the Council of Scientific and Industrial Research (CSIR) which notes that legislation governing the disposal of industrial and municipal waste is hopelessly ineffective—offenders face a maximum penalty of a R500 fine.

Steel Plant Polluting Transvaal Highveld

91WN0295A Johannesburg THE WEEKLY MAIL in English 8-14 Feb 91 p 4

[Article by Eddie Koch]

[Text] Pollution filters at the Highveld Steel works near Witbank are switched off at night to boost the productive capacity of the giant plant.

This allegation was made to THE WEEKLY MAIL this week by employees at Highveld Steel, the largest producer of vanadium in the world.

The workers say this practice sends clouds of dangerous dust and grit into the air under cover of darkness, adding to the high levels of atmospheric, contamination over the Eastern transvaal Highveld.

But Leslie Boyd, the company chairman, denies that the plant's sophisticated filters are switched off to boost profits and productivity.

He insists that the operation of the filters has no effect on the efficiency of the plant's furnaces and that company engineers, therefore, have no motive for shutting them down.

However, a former employee in the industry told THE WEEKLY MAIL: "I know that the pollution control plant reduces steel production by 16 percent when in operation. Should the wind blow away from Witbank or the Pretoria Witbank highway, the pollution control plant is switched off. The plant is also switched off at night."

The Anglo American Corporation, which owns Highveld Steel, has spent vast sums of money on controlling pollution at the plant and conducts a sophisticated public relations campaign to portray its steelworks as an environment friendly factory.

A recent advertisement says air pollution control technology has reduced emission of particulate matter from the furnaces to less than one percent.

It adds: "Highveld Steel has spent R120-million on antipollution systems that, in order to run and maintain, take $12-million a year. The result is that smoke from the kiln stacks at Highveld Steel is virtually as harmless as the dust of the earth..."

Workers at the factory, including labourers, artisans and retired foremen, insist this is not always true.

The corporation's advertisement says the small amounts of soot that do get into the air are almost entirely biodegradable. But a former employee says huge clouds of ferric oxide, which is not degradable, are pumped out when the filters are shut down. He claims there is so much ferric oxide on the ground that it discolours the milk of cows which graze in the area.

Highveld workers who spoke to THE WEEKLY MAIL include members of the National Union of Metalworkers (Numsa) and the more moderate Boilermakers' Society. Both unions plan to campaign around the issue of air pollution and its effects on the health of people living in Witbank.

A retired foreman explained that the filters sometimes trip out when the plant is running at full capacity and when this happens the furnaces shut off as well. An emergency generator then starts up, but the furnaces can be refired only after an emergency team is called in to repair the malfunction. This, he said, can lead to a few hours loss in production time.

Highveld Steel is in effect a complex of metallurgical units and some 42 stacks that emit a combination of pollutants into the air.

Rand Carbide, a subsidiary of Highveld Steel, also shuts down its gas cleansing filters to ensure smooth production at certain times, according to some informants.

"The filters work well if there are visitors to the factory. But when the visitors go they switch them off," says a Numsa shop steward.

The workers describe how thick layers of black dust and soot collect on the premises of the factory.

"We have complained about air pollution and the problems it causes to our health but they have done nothing. Workers will take action unless management does something to stop the pollution," says a shop steward.

A recent medical survey by Professor Saul Zwi of Wits University's Medical School suggests that children from Witbank suffer stunted growth and increased rates of respiratory diseases because of pollution in the air.

Particulate matter—the dust, grit, soot and tiny particles of coal—emitted from the furnaces is particularly dangerous as it penetrates the linings of the lungs, often carrying with it dangerous amounts of carbon dioxide, sulphur dioxide and nitric gases.

The district surrounding Witbank concentrates within a 90 km radius a complex of coal-fired power stations, steelworks, petrochemical industries and metallurgical plants that have turned the region into one of the most polluted in the world.

The semi-official Council for Scientific and Industrial Research and private researchers have monitored levels of sulphur dioxide in the air over the Highveld which rival that of East Germany, the country affected most adversely by this form of pollution.

Anglo replies:

- All plants at Highveld making emissions are fitted with filter equipment. This equipment operates for between 96-98 percent of the total production time. The equipment is not switched off at night or when the wind direction changes, as alleged.
- Operating the filters, in any event, does not reduce the production capacity of Highveld's plants.
- Filter equipment is inoperative only: during planned maintenance, which is carried out in the daytime when the necessary staff is on duty; and in the event of a breakdown.
- During the two to four percent of the total production time the filter equipment is inoperative, Highveld readily acknowledges that emissions are made into the atmosphere. These raw emissions—iron oxide dust, lime dust and coal dust—are not poisonous as alleged.
- Boyd said that he, as a third-generation steelmaker and a resident of Witbank for 13 years, had not experienced discoloured milk.

Concern Over Vaal Triangle Air Pollution

MB2003115391 Johannesburg THE STAR in English 20 Mar 91 p 3

[Unattributed report: "Shock Report on Triangle Air Pollution"]

[Text] The first results of the Vaal Triangle air pollution health study have revealed that the concentrations of ozone and particulate matter in the area are causes for concern.

Researchers from the Medical Research Council (MRC) believe that, given the varied and complex sources of air pollution in the Vaal Triangle—from major industries and domestic coal-burning to a region rich in pollen—the situation is extremely complicated.

This makes the area a "potentially problematic environment," they have decided.

The MRC study was commissioned by the Department of National Health and Population Development last year.

More than 10,000 children have been involved in the first phase of the study, which dealt with air pollution.

Other results from the first stage show that the average sulphur dioxide and nitrogen oxide concentrations measured in the Sasolburg area from August to November last year were acceptable and should not pose a health hazard.

Study Shows Ontario Pulp Mills Spew Dioxins Into Waters

91WN0282A Toronto THE TORONTO STAR in English 6 Feb 91 p A10

[Article by Peter Gorrie]

[Text] Dioxins and other cancer-causing chemicals are in the waste water flowing from 21 of 27 Ontario pulp and paper mills, the provincial environmental ministry says.

Many of the mills were also spewing toxic metals such as aluminum, lead and mercury into lakes and rivers, says a ministry study based on tests during the first half of 1990.

The tests—by far the most extensive survey of Ontario pulp and paper mills—were conducted as part of the province's Municipal-Industrial Strategy for Abatement. The program is aimed at cutting water pollution from all types of industries.

"I have recently met with industry representatives to express my extreme concern about the findings of this report," Environment Minister Ruth Grier said.

"It is clear that fast abatement action on the part of these mills is needed to drastically reduce pollution discharges."

But Joe Bird, president of the Ontario Forest Industries Association, said he was disappointed by the pessimistic tone of a news release accompanying the report.

Ontario's mills have cut their pollution substantially during the past five years and are working to meet stringent rules for discharges of dioxins and other chlorine-based chemicals by the end of the year, Bird said.

The report states that at five of the mills, the effluent contained dioxin at up to 15 times the toxic concentrations allowed under Ontario drinking water guidelines.

In at least two cases, the waste water contained the most toxic form of dioxin, 2,3,7,8-TCDD.

However, none of the deadly chemical was found in tests of drinking water supplies in the areas near those mills.

The discharges pose little immediate threat to human health, but "whenever you have pollution in the environment, and whenever you have the number of situations you have with this industry, it's a reason to be concerned," said Jim Ashman of the ministry's water resources branch in an interview.

Dioxins, furans and other chlorine-based chemicals last a long time in the environment and can build up in the food chain. They are believed to cause cancer and birth defects in humans.

Tian Jiyun Praises Beijing Afforestation Work

OW1003022691 Beijing XINHUA Domestic Service in Chinese 1442 GMT 9 Mar 91

[By reporter Su Huizhi (5685 2585 1807)]

[Text] Beijing, 9 March (XINHUA)—At a commendation meeting held today by the capital's greening committee in the Great Hall of the People, 589 advanced units and 1,097 advanced individuals in greening and beautification work were rewarded.

Vice Premier Tian Jiyun attended and addressed the meeting. Tian Jiyun said: Beijing is the capital of our great country, as well as the center for the country's political, cultural, and international exchanges. With joint efforts by the Beijing Municipal Party Committee, Government, and the large number of armymen and civilians, the national compulsory tree planting movement and the greening and afforestation work were done better and more thououghly each year. The area covered by forests was substantially increased, and the appearance of urban and rural environments changed noticeably. He said: The key to doing a good job in afforestation and in greening and beautifying the country lies in constantly enriching the knowledge of such work among leading cadres at various levels and the large number of people; intensifying people's consciousness about making the country green; and mobilizing millions of people throughout the country to promote and continue this great task, which has a bearing on current economic and social development and on our posterity.

Tian Jiyun also said: We should publicize the significance of greening and afforestation work extensively and thoroughly, in order to enhance the peoples' initiative in and consciousness of tree planting and afforestation. Meanwhile, we should also perfect various laws and regulations on compulsory tree planting and afforestation, so that the principles, policies, and specific work and requirements of such tasks will be carried out in accordance with available rules and laws.

Tian Jiyun stressed: This year is the 10th anniversary of the national compulsory tree planting movement. We should continue our efforts on what has been achieved. Leading departments at various levels and all relevant units must take tree planting and afforestation as an important measure to improve the ecology. Tree planting and afforestation play a large role in and are the quickest way to improve and protect environmental quality; they are the best form of labor protection. The work can effectively control the ecological deterioration.

Duan Junyi, Liao Hansheng, Chen Xitong, Hong Xuezhi, Zhao Nanqi, Gao Dezhan, Hou Jie, and other responsible persons of relevant departments attended the meeting.

Monitoring Contributes to Clean Tibetan Environment

OW0603135291 Beijing XINHUA in English 1340 GMT 6 Mar 91

[Text] Lhasa, March 6 (XINHUA)—Tourists to Lhasa, capital of the Tibet Autonomous Region, are impressed by its clear sky, clean water and fresh air. Environmental monitoring workers have identified Lhasa as one of the cleanest cities in China.

Accoring to reports from the regional environmental monitoring station, the content of sulphur dioxide in Lhasa's atmosphere is less than 0.1 milligram per cubic meter, much lower than that permitted by state standards. The air is also free of nitrogen oxides.

In the center of the city, where lots of incense sticks are burnt during religious activities, the dust content still is below 0.4 milligrams per cubic meter.

Environmental workers have also found that water in the Lhasa River does not contain any traces of heavy metals.

The moderate noise pollution in Lhasa comes from car horns—the peak flow of motor vehicles in Lhasa's main streets is 824 per hour.

Tests also show that there is no radiation pollution resulting from human activities in Tibet. Moreover, the little natural radiation pollution due to high altitude falls within acceptable limits.

These findings are based on observations conducted since last August, when the regional environmental monitoring station was set up with a state investment of 3.9 million yuan.

The monitoring station has set up three posts in Lhasa for collecting and analyzing air samples, three posts along the Lhasa River for monitoring water quality, and 27 posts for controlling traffic noise pollution.

To protect the environment, the municipal government has paid close attention to afforestation and the control of pollution sources. As a result, the city's vegetation coverage increased from 13.4 percent in 1985 to 17.7 percent in 1990.

The city has decided to take further measures to control garbage, sewage and traffic noise pollution problems this year.

Meanwhile, the central and regional governments will invest 2.54 million yuan to build environmental monitoring stations in Xigaze in western Tibet, and Qamdo in eastern Tibet. The two stations, together with the ional monitoring station in Lhasa, will form a monitoring network in Tibet.

Ecological Model System Established

OW0903083591 Beijing XINHUA in English 0756 GMT 9 Mar 91

[Text] Beijing, March 9 (XINHUA)—China has established an exemplary ecological network in an effort to

develop its macro-agriculture and use its land and natural resources with efficiency.

According to Shen Shanmin, head of the Shenyang Institute of Applied Ecology under the Chinese Academy of Sciences, the project, which started in 1989, has involved more than 600 scientists from 22 institutes and 21 field labs.

Population, natural resources and the ecological environment are the most serious problems threatening humankind, Shen remarked. China, the world's most populated country, has already begun to pay more attention to these pressing matters.

Professor Shen, whose institute leads the work, said that since 1989, an exemplary system representing different ecological types has been formed and 17 outdoor ecological exemplary zones concerning agriculture, forestry, glass and waters have been set up. In all, these zones cover more than 68,000 hectares of land, Shen noted.

Based on the data obtained by the field labs established in the 1950s and 1960s, Shen said, the newly-founded network has started a comprehensive analysis and study on the past and future development of the country's eastern agricultural zones.

Anhui Village Wins UN Environmental Award

OW1303113291 Beijing XINHUA in English 0202 GMT 13 Mar 91

[Text] Hefei, March 13 (XINHUA)—Xiaozhangzhuang Village in Yingshang County, east China's Anhui Province, has been honored with a "Global 500" award for 1991 due to its successful efforts in developing fine ecological conditions for agriculture in recent years.

The "Global 500" awards are presented by the United Nations environmental program to those individuals and collectives which made great contributions to global environmental protection during the 1987-1991 period.

The village, located on the Huaibei Plain, suffered from serious drought and floods in the past due to its poor ecological environment.

In the mid-1970s, the village launched a campaign involving water and soil conservancy and afforestation.

The results have been that forest coverage rate rose to 26 percent from the former 6.9 percent, per-ha grain output rose to 13,500 kg from the original 750 kg and per capita income rose to 800 yuan (about 160 U.S. dollars) from the former less than 100 yuan.

It is learned that the awards ceremony will be held June 5, the International Environment Day, in Stockholm, Sweden.

Antipollution Efforts Urged for Shanghai's Suburbs

91WN0275A Shanghai JIEFANG RIBAO in Chinese 24 Jan 91 p 5

[Article be Xiong Yundan (3574 0061 2481): "Pollution in The Suburbs Cannot Be Overlooked"]

[Text]

The Cure Requires Joint Efforts by City and Rural Residents

In the last 10 years, township enterprises in the suburbs have developed rapidly, and the "vegetable basket project" has also made substantial progress. However, at the same time, a very serious problem confronts us: environmental pollution in the suburbs is becoming more serious each passing day.

In the wake of discharges of city refuse, industrial waste water, and waste gas into the countryside, along with the disposal of large quantities of human and animal waste and agricultural fertilizers, water quality in the suburbs has gone steadily downhill. According to our understanding, in 1986 and 1987 the average annual amount of polluted water in the city's suburbs reached 1.976 billion cubic meters, which is close to the amount formed by precipation runoff. Hence the ratio of clean to polluted water was 1:1. The polluted water entering the Huangpo River was equivalent to 21 percent of the total water volume, and the number of days that the water was black and foul-smelling increased from 151 in 1982 to 229 in 1989. Pollution has already damaged the newly constructed estuary on the upper reaches of the Lin River. Presently 33 percent of the inland waterway channels are unsuitable for raising fish.

At the same time that water quality is declining, soil pollution is steadily increasing. The amount of highly toxic pesticides used on suburban farmlands each year reached roughly 5,000 tons in the 1980's. Added to this were harmful substances in the atmosphere that precipitated with the rain, and also polluted water that soaked in. Harmful substances have become concentrated in the soil in abundance. It has been determined that the nitrate levels in leafy vegetables, as well as in onion- and garlic-type vegetables produced in individual gardens in the suburbs, commonly exceed standards; the phenomenon of levels of heavy metals such as cadmium and mercury and of phenols exceeding standards is becoming more serious daily. When these vegetables are sold, the health of city residents is directly affected.

Industrial and occupational diseases are increasingly evident in township enterprises. According to a survey, in the eight years from 1982 to 1989 there were 16,266 cases of various occupational diseases citywide, with 1,340 of them, or eight percent of the total, occurring in township enterprises. There were 587 cases of acute poisoning, with 104 of them, or 17.71 percent, occurring in township enterprises. There were 42 deaths caused by acute poisoning, with 11 of them, or 26.19 percent, occurring in township enterprises.

The suburbs are the base of production for Shanghai's nonstaple goods, as well as a base for the spread of heavy industry. The increasing seriousness of environmental pollution in the suburbs will effect the normal lives and the production of everyone in the city. Knowledgeable experts suggest that people from the city and countryside

should work together to progressively strengthen environmental protection work in the city's suburbs. They should carry out the following list of work items speedily and properly:

First, the "three wastes" from industries are currently the major source of pollution in the suburban environment. To deal with this, leadership at all levels should consider environmental protection at the same time they consider economic development. Construction of industrial projects whose pollution-controlling technologies are not yet up to standard should be stopped or delayed. A time limit for improving pollution control facilities and worker protection facilities should be imposed on enterprises, such as electroplating, spray painting, and polishing enterprises, that have already been constructed and that are the more serious polluters. These types of factories should also be gradually moved to downwind, downriver areas, and a certain protective belt should be left between these factories and residential, headwater, administrative, cultural and educational, business, cultural relic preservation, nature preservation, and agricultural areas.

Second, great effort should be expended on forestation and greening, developing a flower garden economy, air purification, and on improving the ecosystem. Presently, each city resident has on average only 0.92 square meters of green area. The city must create treed and green areas, but it lacks land. Thus the city should consider creating a wide belt of trees and greenery on the outskirts of the city. The garden greening of villages must also be progressively developed, because this is also beneficial in improving the environment.

Third, most of the large amount of human and animal wastes from the city and villages does not currently provide any benefit; it is disposed of by dumping it directly into the river channel, creating pollution. In the future we must create conditions for handling various types of wastes through such methods as fermentation or using waste as fertilizer for farmlands, as fish feed, or for generating methane. In this way, waste can be turned into treasure, and pollution can be reduced.

Fourth, in addition to properly handling and disseminating information on suburban environmental protection work, governments at all levels, city and county, must frequently supervise and investigate such work. Those who violate relevant stipulations must be punished according to administrative and legal measures. In the 1960's, environmental pollution was also quite a serious problem in Japan, yet after 10 years of pollution control the problem has essentially been solved. The primary lesson in Japan's experience involves the fact that economic, social, and environmental benefits were stressed together. Work was done along both economic and legal lines. Concrete methods, such as using investment to eliminate pollution and legislation to prohibit pollution were implemented. This is a valuable lesson for us.

Guangdong To Make Big Investment in Hydroelectric Projects

HK2503051691 Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 22 Mar 91

[Text] The provincial Water and Electricity Department called a news briefing yesterday, at which Department Head (Guan Zongzi) disclosed that the province would invest a huge sum of money amounting to 8.7 billion yuan to develop water conservancy and hydroelectric projects during the Eighth Five-Year Plan, in order to provide a better guarantee in flood prevention and head waters for the province's national economic development.

It is learned at the news briefing that the province will engage in the following major water conservancy and hydroelectric projects during the Eighth Five-Year Plan:

Working out plans for the construction of large-scale flood prevention and control projects, such as (Tiandangshan) reservoir, (Bandong) reservoir, (Jinjiang) reservoir, and (Feilaixia) key water control project;

Gradually reinforcing a number of sea and river dikes and dams which are not up to standard;

Planning the completion of the third-phase expansion construction of Dongjiang-Shenzhen water supply project;

Starting the construction of (Xizhijiang-Danao) water supply project, and (Sixianjiao) key water control project;

Increasing 300-350 thousand kw of installed capacity of small hydropower stations in order to resolve problems for 900,000 rural inhabitants, such as difficulties in getting drinking water.

REGIONAL AFFAIRS

New Zealand Group Criticizes Japanese Fishing Methods

BK2503133391 Hong Kong AFP in English 1310 GMT 25 Mar 91

[Text] Wellington, March 25 (AFP)—A leading New Zealand environmental group claimed Monday that a Japanese fishing technique used to catch tuna was killing thousands of seabirds, including rare wandering and royal albatrosses.

The group said that after having pressured Japan, South Korea and Taiwan to stop using driftnets in the South Pacific, it would now campaign to stop longlining.

The New Zealand Royal Forest and Bird Protection Society said it was disappointed that no government official will observe the fleet fishing for southern bluefin tuna in New Zealand waters.

Twenty of the estimated fleet of 40 boats have already checked through Wellington, with the rest due shortly.

Society spokesman Alan Tennyson said the seabird kill in the fishery was one of the most pressing seabird conservation issues in the world.

"Birds swallow bait as the lines are set and drown when the line sinks," he said.

Among measures called for by conservationists, longliners would have to fly 50-metre streamers over the area where the lines enter the water, in an effort to deter the birds from diving for the bait.

But "without observer coverage on the fleet, we won't know what the boats are up to," Mr. Tennyson said.

"The alarming decline of the world's largest seabird is being ignored" by New Zealand's Ministry of Agriculture and Fisheries, he charged.

A 50 percent decline in the worldwide population of wandering albatrosses over the past 20 years has been attributed to the fleet, which operates in New Zealand, Australian and Indian Ocean waters.

Stocks of the bluefin tuna are also in serious trouble, with catch rates dropping by 65 percent between 1980 and 1986, and the society wants the New Zealand fishery closed, Mr. Tennyson added.

"Our domestic fleets have suffered because of serious overfishing, largely by Japanese fleets," he said.

"There is a tendency for the foreign boats to underestimate their catches. Observer coverage would ensure catch rates are recorded accurately."

AUSTRALIA

Hundreds of Plant Species Threatened by Fungal Plague

BK2403151891 Hong Kong AFP in English 1457 GMT 24 Mar 91

[Text] Perth, Australia, March 24 (AFP)—A fungal disease spread by people is threatening to wipe out hundreds of plant species in the southwest of Western Australia, a conservation expert said here Sunday.

Syd Shea, executive director of the Western Australia Department of Conservation and Land Management, said as many as a million hectares (2.47 million acres) of bushland could be destroyed by the fungal scourge dieback disease.

There are about 1600 plant species in the affected area and two thirds of them could be lost, he said, adding that the problem had reached plague proportions.

Mr. Shea described the problem as "an environmental tragedy of world significance."

He said susceptible plants were often important food sources or habitats for animals such as the honey possum and birds, which could become hidden victims.

The fungus comes from the tropics and thrives in the warm, wet conditions in the state's southwest, where the soil is also conducive to the spread of the disease.

Humans are mainly responsible for the spread of dieback, he said. They carry the fungus on their footwear or on the wheels of vehicles.

Banning public access to diseased areas was one of the most effective ways of checking the advance of the fungus, he said.

JAPAN

Plans To Adopt New Energy Sources Outlined

912A0134A Tokyo TSUSAN JANARU in Japanese Jan 91 pp 56-59

[Article by NIHON KEIZAI SHIMBUN editor, Kazuhisa Yamagiwa: "Reduction of CO_2 Is the Duty of Industrially Developed Japan]

[Text]

Importance of This Worldwide Environmental Problem Has Risen

Nowadays the environmental problems of the earth are being considered widely throughout the world. Among those problems, the global warming problem is considered particularly critical. Through the consumption of energy, that problem has an intimate relationship with our lives as human beings. Moreover, the present energy problem, differing from the past two oil shocks and from regional pollution problems, includes the fundamental problem of "life and energy."

In this series, we plan to take up topics such as energy saving and new energy sources which are expected to become important points in energy-related matters hereafter. In this first installment, we would like to outline the present state of energy-related matters in Japan.

Turning Point in our Richly-Blessed, Fossil Fuel-Based Lives

The environment of the earth is being viewed as a major problem throughout the world. Within that larger problem, attention is being focused on the global warming gas problem as one of the subjects which is proving to be difficult to solve. Humanity has been supporting its luxurious lifestyle on the burning of fossil fuels. However, it is thought that the fundamental evil causing global warming is carbon dioxide (CO_2), which is the inevitable output of burning fossil fuels. Therefore, CO_2 has been taken up as a major problem throughout the world. In October of 1990, the Japanese Government decided to stabilize the per capita CO_2 output for the year 2000 at the 1990 level. Further, a policy entitled "Action Plan for Prevention of Global Warming" has been formulated. This policy aims at an even more strict CO_2 emission standard by maintaining the 1990 level even after the year 2000 through speeding up technological development and the implementation of a new governmental policy. To prevent global warming, it is thought that an enormous burden equivalent to the sales tax will be necessary. Although the key to the selection is in the hands of the populace, it would seem that it is necessary for us as an advanced industrial country to take the lead in initiating action.

Action Plan for Prevention of Global Warming and Goal of Substitute Energy Supply

The action plan for prevention of global warming includes technological development for energy and resource conservation, conversion of the industrial structure, hastening the use of new energy forms which give off small amounts of carbon dioxide, promotion of reforestation and tree planting, the development of technology which will allow the effective use of CO_2, and the scientific elucidation of the warming mechanism. The period of the plan is from the present through 2010.

Further, the government decided the goal of its oil substitute energy supply for 2010 at the October, 1990, cabinet meeting. This goal conforms with the global warming prevention action plan, and in addition to increasing to 26.8 percent, or an expansion of 12 points from the actual usage in fiscal 1989, the level of dependence on nuclear energy and new non-fossil fuel energy sources, which do not emit CO_2, the government plans to reduce the consumption of oil by concentrating on the transportation arena, decrease the dependence on oil 12.6 points to the low 45.3 percent, and increase the relative percentage of nonfossil fuel energy sources.

The goal shows all supply amounts by energy source for the year 2010 converted to an amount of crude oil. The total amount of the supply is a 31.7 percent increase when compared to the actual 1989 record of 499 million kiloliters. This 657 million kiloliters is a 9 million-kiloliter reduction of that planned for in the long-term energy supply and demand forecast made by the comprehensive energy investigative committee, an advisory body of the Ministry of International Trade and Industry, in June of the same year. The reduced amount is all oil. The Transportation Ministry is promoting a policy to change from truck transport to rail and sea and is developing a scenario in which oil consumption is restrained.

As a result, the 289 million kiloliters of oil supplied in 1989 will increase only slightly to 298 million kiloliters in 2010. This will be a decrease in dependence from 57.9 percent to 45.3 percent. The amount of energy supplied by sources other than oil have been held at the same levels as those in the long-term forecast. The plan calls for the dependence on atomic power generation, a representative non-fossil fuel energy source, to be 16.9 percent, or an 8-point increase. In 2010, the amount of nuclear generated power will be 474 billion kilowatt hours. During the next 20 years, this will mean that about 40 new 1 million-kilowatt power stations will have to be built.

Will Freezing CO_2 Emissions Lead to Minus Economic Growth?

Critics are saying that building 40 new nuclear power plants as the response to the 757 million-kiloliter forecast is unrealistic. To increase usable energy 31.7 percent while freezing CO_2 emissions will be an extremely difficult task. This has become the basis for the opinion that freezing of the amount of emission will influence economic growth negatively.

"I have a feeling that it is next to impossible to freeze the CO_2emission amount while at the same time maintaining the economic growth rate," (Professor Yoichi Kaya of the Engineering Department at Tokyo University). It is a fact that this opinion is widespread.

There is an optimistic theory, also. Professor Satoshi Hirata of the Tokyo University Innovative Science Technical Research Center has tentatively calculated that the amount of CO_2 emitted can be reduced by 20 percent through the introduction of cogeneration. "Freezing of CO_2 emissions will be possible simply by saving energy and recovering exhaust heat," insists Professor Hirata.

In actuality, while achieving economic growth, Japan has recorded almost no increase in energy consumption for the 15-year period after the 1973 oil shock. This was done through energy conservation.

Main Subjects Henceforth Are Energy Conservation, Exhaust Heat Recovery, and New Energy Sources

Well, then, in what way will it be possible to freeze CO_2 emissions? Methods for freezing CO_2 emissions can be classified into three large groups, energy conservation, exhaust heat recovery, and new energy sources. If the

increased amount of energy garnered from these three CO_2 emission-free sources can be apportioned, all should be well.

The themes within the topic of energy conservation are energy conserving manufacturing facilities, energy saving electrical products, and improvement in automobile gas mileage. Professor Takao Kashiwagi of Tokyo Agricultural and Industrial University is an expert in energy conservation. He says, "We can supply one-third of the increased energy which will be needed by the year 2010 through energy conservation technology.

In the arena of exhaust heat recovery, the most effective is cogeneration. The 20 percent reduction in CO_2 which Professor Hirata has calculated represents half the increased energy amount.

What is left is new energy sources. Among new energy sources are solar cells, wind power generation, and geothermal power generation. The one which appears as if it will become a significant source is solar cells. A 30-square meter solar cell can produce three kilowatts. That is sufficient power for a normal household. "We can supply one-third of Japan's power demand simply by installing solar cells on the roofs of homes, buildings, and factories." So says Yukinori Kuwano, head of Sanyo Electric Machines Functional Material Research Laboratory. Since the power demand is equivalent to one-third the amount of all energy consumed, solar cells can supply about one-fifth of the increased energy amount.

Sweeping Reconsideration of Government Policy and Industrial System Necessary

When looked at in this way, calculations reveal that the increased amount of energy which will be necessary by 2010 can be supplied by energy conservation, exhaust heat recovery, and new energy sources. However, to accomplish that, a broad turnabout in government policy, a sweeping conversion of the production system, and cooperation from the industrial world will be necessary. For example, if new technology such as ceramics is brought into play in combined cycle power generation in which gas turbines and steam turbines are used, energy use efficiency will be greatly improved. Further, introduction of continuous flow iron manufacturing equipment in the steel industry makes it necessary to have an integrated process. Automobiles and household appliances also will have to provide energy conservation 20 percent higher than at present. To make this a concrete reality, the necessity of considering creating an energy consumption tax system or surcharge system which will provide funds which can be allocated for technological development or incentives will arise.

To introduce cogeneration in exhaust heat recovery, it will be necessary to build small power generating stations near those large cities which need a heat supply and lay a pipeline network for the supply of exhaust heat. In this case, if we do not adopt the method of having the power company buy the power which is generated, it will not be possible to achieve efficient energy use. Furthermore, it will also be necessary to implement a system in which those companies needing high temperature exhaust heat will be able to use the exhaust heat first and thereafter have it passed on in order to those companies which do not need such high temperature exhaust heat. Therefore, exhaust heat from an iron works would be passed on to an oil refinery and from there to a food processing company. This means that it will be necessary to design a whole region systematically, not just looking at one factor.

Furthermore, solar cells are at the present time higher priced than the power fees being charged by power companies. To make their use widespread will require government support. Also, technological development to increase the level of mass production technology and power generating efficiency is also important.

If we do not rethink from the basics such public corporations as electrical power, political policy, and cooperation of the industrial world, the CO_2 problem cannot be solved. Also the need to think about phasing in more nuclear power plants will also arise. The CO_2 problem is a problem with which the government must grapple in all earnestness. That is the duty of Japan as an industrially advanced country. What is more, we will be unable to garner the confidence of Third World countries if we do not solve the CO_2 problem.

Japan has a record which shows it steering successfully through two periods of upheaval—the Meiji Restoration and the rebuilding after the war. At the time of the oil shock also we were able to achieve energy conservation. The present global environmental problem is not simply an energy problem. This problem springs from the more basic fact that the earth is limited. From the viewpoint that the essence of this problem is different, it would not be an exaggeration to say that this is the third period of upheaval for Japan. What differs this time from the previous two times is that we are already leading prosperous lives and we have no inner desire to change things.

In terms of technology and industry, Japan is a leader among nations. From all countries of the world voices expressing their expectations of Japan are becoming louder, day by day. The global environmental problem is a theme which has the potential of questioning whether or not Japan is a country which can be relied upon.

Automatic Shutdown at Sole Nuclear Fuel Reprocessing Plant

OW0903073091 Tokyo KYODO in English 0719 GMT 9 Mar 91

[Text] Mito, March 9 KYODO—Rising temperature automatically shut down a container dissolving enriched uranium at Japan's sole nuclear fuel reprocessing plant at Tokai Friday, but no radioactive material was leaked into the air, officials at the facility reported Saturday.

The incident at the Nuclear Reactor and Nuclear Fuel Development Corp. (Donen) Tokai Works in Tokai

village led the plant to halt operations of two other concrete-reinforced dissolvers in the plant for safety precautions, officials said. The facility is located on the Pacific coast about 100 kilometers north of Tokyo.

Donen officials said they are investigating the cause of the trouble and it would take several days to complete the work.

It was the first automatic shutdown of the nuclear fuel dissolver at the plant since the facility went into operation in 1977, the officials said.

A preliminary report released by Donen officials said air pressure in one of the three cylindrical-shaped tanks rose suddenly at around 5.58 p.m. Friday, automatically stopping its operation.

The tanks, measuring three by six meters, are shielded with concrete walls 1.5 meters thick.

No radioactivity leakage was reported or pollution caused to the surrounding environment, Donen officials said.

Barometric reading inside the dissolver involved in the automatic shutdown suddenly rose to 1.18 atmospheres from the normal pressure of below one atmosphere, apparently because of an abrupt increase in steam and gas in the tank, they said.

The vessels are used to separate uranium and plutonium from spent nuclear fuel. They are heated from outside to raise the temperature inside to 105 degrees Celsius to activate the chemical reaction necessary for the dissolution of the spent nuclear fuel.

Donen officials said the tanks' operations were usually shut down manually when high air pressure was noticed, but the rise of pressure in the dissolver that stopped automatically Friday was too quick for manual control.

Shutdown Ordered for No 2 Reactor at Takahama Plant

OW2003144791 Tokyo KYODO in English 1222 GMT 20 Mar 91

[Text] Tokyo, March 20 KYODO—The government ordered Kansai Electric Power Co. Wednesday to shut down No. 2 Reactor at its Takahama plant pending inspection of faulty installation of a device linked to an accident at another facility operated by the company, officials said.

The officials said the order was issued by the Ministry of International Trade and Industry [MITI] to check a slender antivibration bar (AVB) designed to reduce vibrations in tiny pipes attached to the steam generator (SG) of the 826,000 kilowatt boiling water-type reactor.

The officials said tests by an electric inspection device confirmed the antivibration bar was not installed correctly.

Kansai Electric Power Co. said the reactor in Takahama town, Fukui Prefecture, will be shut down by midnight Wednesday to correct the faulty installation.

Mitsubishi Heavy Industries Ltd., main contractor of the reactor, said it also will take measures, if necessary, to correct the installation in accordance with the design.

The company said it is reexamining data on nine other reactors of similar type currently in operation in order to confirm the location of the antivibration bar in the steam generator pipes.

The reactor is the second facility operated by Kansai Electric Power Co. to be shut down for a similar reason.

On February 9, a reactor at the company's Mihama plant also in Fukui Prefecture, one of pipes that should have been held in place by the bar broke, allowing 55 tons of radioactive water to leak from the primary cooling system that powers the plant's turbine.

The MITI officials said the initial test showed the bar is shorter in length than required and its V-shape bottom was being rocked in the steam carrying pipe.

The Takahama No. 2 Reactor, built by Mitsubishi Heavy Industries, began operation in 1975.

The reactor has three steam generators with a total of 10,164 tiny pipes.

A regular inspection in February this year found damage to 598 pipes, the officials said.

The natural resources and energy agency said defects were found in a total of 10 bars at the Takahama No. 2 Reactor.

The agency said the reactor developed radioactive leaks twice in 1985 and 1988 because of cracks in the steam generator pipes.

Kyushu Electric Power Co. said no faulty installation of the bars were found in inspection of four nuclear power plants operated by the company.

The MITI instructed the electric power industry to step up efforts for stable electricity supply during the summer when demand reaches its peak.

The two reactors are expected to remain shut down during the peak period, requiring the ministry to reexamine its electricity supply program for the summer.

The Federation of Electric Power Companies expressed extreme regret over the accident at the Takahama plant and said it will make the utmost effort to ensure safe operations of atomic power plants.

SOUTH KOREA

Contaminated Tapwater Found in Taegu, Pusan

SK2103061291 Seoul YONHAP in English 0518 GMT 21 Mar 91

[Text] Taegu, March 21 (YONHAP)—Residents in Taegu, Changwon, Masan and Pusan have been alerted

against using tap water since learning that the reason for its foul smell recently is that the supply is contaminated with a toxic chemical that can damage the nervous system and cause cancer.

Since November, a company had been accused of pouring untreated waste into the river that supplies those cities with drinking water. Phenol has been singled out as the villain for the alert, which when mixed with the chlorine used to purify the water formed chloro-phenol, a much more toxic pollutant.

The level of phenol has surpassed the safe limit of 0.005 ppm (parts per million) in some parts of Taegu, climbing as high as 0.0086 ppm, officials here said Thursday.

Pusan City, located at the end of the Naktong River, went on alert late Wednesday when traces of phenol were detected in the water supply. City officials ordered a halt to the use of chlorine by water purification plants and told them to find alternatives.

Environment ministry officials have begun a close check to trace the flow of the chemical.

An investigation has traced the leak to Doosan Electro-materials Co., a major exporter of phenolic laminate. The company is suspected of having dumped 325 tons of raw waste into the river between Nov. 1 and Feb. 20 because one of its two phenol incinerators had broken down. Repairs were completed and the polluting stopped Feb. 20, according to the Taegu District Prosecutor's Office.

Doosan has produced 9.5 tons of phenol a day since the time the factory opened in February 1980, but can treat only 8.4 tons when both incinerators are working at full capacity. The rest is thought to have gone into the river, the prosecutor's office says.

The prosecution arrested six senior Doosan officials on charges of polluting the river. The prosecution suspects the environment ministry, and municipal and provincial officials knew what was going on and deliberately kept silent despite the grave health risk, and is planning to expand its investigation, sources said.

The current investigation began after residents of Taegu began to complain about the foul odor of their tap water. The city's answer was to use more chlorine, not knowing that it was part of the cause of the problem because it was reacting with the phenol to produce the toxic compound chlorophenol.

Citizens, Consumer Groups Protest Water Pollution

SK2403032891 Seoul THE KOREA TIMES in English 24 Mar 91 p 1

[Text] Public protests are spreading to the nation's major cities to condemn the Doosan Electro-Materials Co., a phenolic laminate manufacturing company, accused of polluting tap water sources.

Some consumers groups are boycotting all products manufactured by the Doosan Business Group and its subsidiaries including OB Beer and Coca-Cola.

Panic and outrage began when a Doosan factory in Kumi, Kyongsang-pukto, was held responsible for discharging 325 tons of phenol, a cancer-causing material, into the Naktong River, which supplies piped water to nearly 10 million people.

The collective movement was spearheaded by social organizations in Taegu, the nation's third largest city, where millions of citizens have suffered from offensive odor in tap water for nearly 10 days.

Seven organizations such as the Taegu branch office of the Citizens' Coalition for Economic Justice, YMCA and YWCA launched a joint protest rally at a downtown Catholic center yesterday to demand compensation and punishment against those responsible.

Before holding the rally at 6:30 p.m., members of the organizations gathered at a downtown street in front of the Taegu Department Store and marched some three kilometers to the Catholic Center.

The organizations called on citizens to refuse to pay tap water bills and boycott Doosan products.

They also vowed to launch a joint struggle until all problems concerning tap water are settled.

Some downtown pubs and stores already are joining the citizens' drive by removing OB Beer from their shelves.

Obstetric and gynecology clinics are receiving calls from pregnant women who are anxious about possible abnormalities of their unborn children.

A hospital official said that he had been called by three to five women daily asking about the influence of phenol on unborn infants. Accurate responses cannot be given due to a lack of research data, he said.

Meanwhile, representatives of 10 citizens' bodies in Seoul issued a statement after meeting at the YMCA building in downtown Seoul.

Criticizing the factory for discharging waste water containing phenol, the statement asked citizens not to buy Doosan products.

The civic groups planned to hold a hearing on the safety of tap water tomorrow by inviting Doosan Group officials, government officials and antipollution activists.

Massive boycotts of products manufactured by pollution-causing companies is regarded as a strong punishment against companies in a nation where such collective movement has not existed in the past.

Meanwhile, Doosan group chairman Pak Yong-kon pledged to donate 20 billion won to the Taegu city government, asking it to use the money to fight pollution.

Saying that the donation is meant to finance part of the cost for the restoration of the environmental damage, Pak added that his company is now studying ways to deal with compensation to deserving individuals.

Prosecutors To Arrest Officials in Pollution Case

SK2403042891 Seoul THE KOREA HERALD in English 24 Mar 91 p 1

[Text] TAEGU—The prosecution, investigating the dumping of large amounts of phenol into the Naktong River, plans to arrest at least seven government officials on charges of negligence or forging documents, prosecutors said yesterday.

The Taegu District Prosecutor's Office said five officials of Shinsong Co., the Kumi-based maker of copper-clad laminated sheet, were also under investigation on allegations that they dumped about 285 tons of untreated waste phenol into the river last year.

Six officials of Doosan Electro-Materials Co. were placed under arrest last Thursday on charges of discharging hundreds of tons of waste phenol into the river, which triggered tap water contamination in the city and other areas.

Prosecutors said seven staffers at the Taegu Environment Administration and two Taegu City officials in charge of water supply were questioned to determine their possible negligence and other wrongdoings.

They include Pak Nam-chae, Yi Sang-sok and Chu Kyo-chong, members of the pollution crackdown team of the district environmental agency.

An initial investigation showed that the government officials are alleged to have forged documents dealing with their clampdown activity on waste-emitting firms, including Soosan Electro-Materials Co.

The prosecution seized the district environmental agency's records on pollution control, which state that Doosan's antipollution devices were in normal operations, even though the company confirmed that one of the two incinerator boilers broke down.

Prosecutors said they were trying to determine whether the officials took any bribes in the course of investigating Doosan.

The prosecution found evidence that Shinsong allegedly produced a total of 768 tons of phenol last year, but disposed of only 483 tons through incinerating. And the remaining 285 tons of waste phenol was discharged without treatment, prosecutors alleged.

The prosecution was also expanding its probe to include other phenol-discharging firms in Kumi and Kimchon, prosecutors said.

In a related development, a joint crackdown team, comprised of officials from the Environment Ministry, Taegu City and Kyongsangbuk-do, detected 15 plants discharging untreated toxic waste. The team conducted checks on a total of 136 firms located in the upper reaches of the Naktong River.

Meanwhile, two officials of a chemical product firm were arrested yesterday on charges of dumping large amounts of untreated waste chemicals, contaminating tap water resources in Chochiwon and Uongi County in Chungchongnam-do in the past 15 days.

The two are Yu Chin-tae, president of Dongsung High Polymers Co., and Ko Tok-sun, the Nojang plant manager.

The prosecution said the two were also quizzed to determine whether they provided bribes to relevant officials in connection with permission to build the chemical product plant in the Nojang industrial estate, originally reserved for agricultural processing firms.

Government Says Polluters Considered Serious Criminals

SK2503082191 Seoul YONHAP in English 0733 GMT 25 Mar 91

[Text] Seoul, March 25 (YONHAP)—The government, announcing an overhaul of the inspection system for better environmental protection, warned polluters Monday that they will be treated as serious criminals.

Major changes include weekly instead of monthly water quality checks, joint government-prosecution inspections of all major industrial complexes and priority installation of self-checking systems at approximately 160 water purification plants.

Proposals include special loans to help small businesses pay for anti-pollution facilities and the introduction of pollution prevention taxes.

The government review follows a major national crisis caused by serious contamination of a river that supplies drinking water to nearly 10 million people.

Doosan Electro-magnetics Co., a subsidiary of a leading conglomerate, the Doosan group, was accused last week of dumping some 325 tons of phenol into the Naktong River, which stretches through South Kyongsang Province in the southeast, contaminating the water with dangerous levels of the cancer-causing chemical.

The illegal discharge began in November and went unnoticed until March 16, when citizens in Taegu complained of foul-smelling tap water. An Ung-mo, home affairs minister, Yi Chong-nam, justice, and Ho Nam-hun, environment, hastily prepared a solution and reported to President No Tae-u in a special meeting.

No ordered the cabinet to use all means necessary and told his staff to remind themselves of the importance of environmental problems.

"There is a grave lack of expertise in solving water contamination," No said. "The government should immediately correct the situation under the prime minister's leadership."

The environment minister promised to put up water quality controllers at all purification plants and to dispatch experts who can react promptly at the first sign of contamination.

The level of phenol permitted in discharged water will be reduced by more than half from five ppm (parts per million) to two ppm, Ho said.

Checks on phenol will be strengthened at all four major rivers and a new 15-member anti-pollution team will be on full alert at kumi industrial complex, a major industrial site that discharges chemicals directly into the Naktong River.

In areas where contamination is high, construction of new factories will be restricted, he said.

The home affairs minister pointed to the lack of financial support for anti-pollution facilities. The national treasury hardly covers installation costs, and the companies who have the facilities are not operating them, he said.

Pollution inspection duties are ineffectively divided between the environment ministry and local administrations, and violators are able to escape punishment by paying fines, An said.

The justice minister blamed the Naktong River contamination on negligence by the company and government environment officials and on legal loopholes, pledging strict enforcement of the law in the future.

Government-prosecution inspection teams will uncover falsified records on chemical discharges and seek out government employees who know about illegal dumping but stay silent, Yi said.

The parent firm as well as the company directly responsible for the dumping will both be penalized, and the company will bear the full compensation for all damages, he said.

Government To Exert 'All Efforts' To Protect Environment

SK2303010891 Seoul THE KOREA HERALD in English 23 Mar 91 p 1

[Text] Prime Minister No Chae-pong said yesterday that the government will help private citizens and local administrative units get compensation for the damage they have suffered from the contaminated Naktong River.

The government will also retain the right to demand compensation from the Doosan Electronic Materials Co., according to Information Minister Choe Chang-yun. Choe briefed the press on a conference of related ministers concerning damage control of the piped water contamination, chaired by No.

Emerging from the two-hour meeting, Choe said the government resolve against pollution is strong, and it will exert all efforts to protect the natural environment from all kinds of damage especially from industrial firms.

According to him, a private team composed of seven experts and a government official will soon start probing the state and cause of the pollution of the Naktong River, which is said to have been seriously contaminated by industrial waste released untreated by the Doosan and other firms.

Besides the team, he said an examination is already underway by the Environment Ministry.

By early next week, the authorities will reveal details on how the Doosan dumped the industrial waste into the Han River on the sly along with the names of responsible people, Choe said.

The minister said the government will announce the results of the investigation without any reservation.

Prime Minister No was quoted as having said that business firms and the general public should once again be awakened to the importance of environmental protection.

Participants in the meeting included Deputy Premier Choe Kak-kyu, Justice Minister Yi Chong-nam, Trade Industry Minister Yi Pong-so, Home Minister An Ung-mo, Health-Social Minister Kim Chong-su, and Environment Minister Ho Nam-hun.

MALAYSIA

Radio Faults Environment Groups for Timber Boycott

BK2003131991 Kuala Lumpur International Service in English 0800 GMT 20 Mar 91

[Station commentary]

[Text] At the same time last year, the International Tropical Timber Organization, ITTO, (indicated) Malaysia to check on its forest conservation policies. After having studied conservation measures in the timber-rich state of Sarawak, they concluded the country's forest management system as among the best in the world. In fact, it was the state government which invited the ITTO team to assess these sustainable utilization and conservation of tropical forests.

At this juncture, it is worthwhile to recall the study was conducted amidst accusations by so-called European environmental groups that Malaysia was destroying its forest resources. But the ITTO team concluded otherwise. Also at the same time, the anti-tropical timber campaign was being aggressively launched by the environmental groups. To the European community and the groups concerned, it seemed a popular cause, but they failed to realize that for developing countries like Malaysia it was a matter of economic survival. Malaysia was deeply concerned about the campaign as it resulted in some EC countries boycotting tropical timber.

To date it is very difficult to verify whether such campaigns have died down. This is in view that the campaigns were more often than not initiated for the selfish interests of certain groups. Business interest was a most probable explanation. Over the years tropical hardwood has been competing successfully against European softwood. As a result, many European firms seem to be losing their markets as tropical timber is cheaper. To counter this they accused Malaysia of depleting its forest resources.

The boycott by EC countries could also backfire. If there is too much pressure on developing countries, then forest lands may be cleared for agriculture and other development purposes. The timber industry plays an important role in the Malaysian economy and employs some 162,000 people. In this field European lobby groups failed to realize. They also practise double standards. They do not take their own governments to task for the millions of forest lands wasted due to indiscriminate logging.

If these groups are truly concerned, they should encourage the relocation of timber-based industries into the timber producing countries. Industrialized countries on their part could lower their barriers against timber manufactured products. These restrictions on imports only retard industrialization and encourage more trade to be soured. This being the case, Malaysia makes no apologies for trying to improve the economic livelihood of its people but it is nevertheless concerned over the protection of the environment. It is proud of its rain forests. It takes great pains to manage them.

The Langkawi Declaration on Environment which Malaysia mooted and supported, bears testimony of its concern for the environment. It is about time Malaysia is given due credit for its forest management policies. The so-called environmental groups should, meanwhile, stop looking for scapegoats elsewhere. Instead, they should start looking at the mess they have created in their own backyard.

SINGAPORE

Minister Says Singapore Gradually Phasing Out CFC's

BK1603122891 Singapore THE STRAITS TIMES in English 15 Mar 91 p 28

[Text] Singapore is ahead of the schedule set by the Montreal Protocol requiring countries to reduce the use of ozone-depleting chloroflorocarbons (CFCs) gradually.

And it will be able to phase out the use of controlled CFCs by the year 2000 as required by the protocol, said Environment Minister Dr. Ahmad Mattar yesterday.

He was responding to Mr. Goh Ghee Wee, chairman of the GPC on environment, who asked whether Singapore could comply with the schedule laid down by the Montreal Protocol.

CFC's, which are found in aerosol products and ploystyrene sheets, harm the environment by depleting the zone layer which shields the Earth from ultra-violet radiation.

The minister pointed out that the consumption of controlled CFCs here has been reduced from 4,000 tonnes in 1986 to 3,500 tonnes last year.

The Montreal Protocol requires Singapore to keep consumption at the 1986 level until December 1994.

To achieve gradual reduction, the Trade and Development Board has set up a tender and quota system to control the consumption of controlled CFCs since 1989.

Last month, the Government banned the import and manufacture of non-pharmaceutical aerosols containing CFCs in another move to cut down the use of controlled CFCs, he added.

THAILAND

Energy Policy Committee Comments on Antipollution Measures

91WN0268A Bangkok THE NATION in English 12 Jan 91 p b1

[Article by Pichaya Changsorn]

[Text] Starting January next year, all domestic car companies will be required to install exhaust-recycling and other special equipment on their vehicles, and adjust engines for unleaded petrol, a high-powered government committee decided yesterday.

The National Energy Policy Committee, chaired by the prime minister, agreed that the measures will help minimize pollution, which have worsened markedly in recent years, especially in Bangkok.

The committee also decided yesterday that domestic oil refineries must be able to produce unleaded petrol before September 1993. Refineries are already required to reduce lead contents in petrol.

By September 1992, one year before they introduce unleaded petrol, the refineries need to cut lead from the present 0.4 gram to 0.15 gram per liter.

PM's Office Minister Korn Tabaransri said after yesterday's meeting that the committee will also instruct the Finance Ministry to introduce tax measures to encourage oil companies to import petrol with less lead contents for domestic sales.

The tax measures are expected to help make environmentally-friendly petrol available locally before the time schedule set by the government.

Sumit Harnmethee of Bangchak Petroleum Co supported the government's decision to introduce unleaded petrol, saying that pollution caused by vehicle exhausts are increasingly harmful to Bangkok residents. Unless the government can limit the city's growth, it is better to reduce lead contents in petrol.

Bangchak, he said, will have to invest a substantial amount in its refinery to produce unleaded gasoline. He estimated that it will take about three years before the refinery can produce the more environmentally-friendly petrol.

Smith Thiemprasert of Esso Standard (Thailand) Co said his firm will be able to produce unleaded petrol around the end of 1994 when it commences the first phase of refinery expansion to boost capacity from the present 65,000 barrels to 145,000 barrels per day.

Scope of Pesticide Poisoning, Corrective Measures Outlined

91WN0285A Bangkok BANGKOK POST in English 3 Feb 91 p 8

[Article by Disathat Rochanalak]

[Text] The market for toxic chemicals consumed by the agricultural sector has become huge.

In 1985, the country imported 17,405 tons of pesticide with the value of 1.57 billion bath, and it rose to 24,251 tons with the value of 2.4 billion baht in 1988. The capacity of domestic production is hovering at only a few thousand tons a year.

In 1985, the total supply of pesticide was 33,759 tons, and shot up to 58,258 tons in 1988, a 57 percent increase over the five-year period.

Last year the country imported 208 pesticides by trade name. The chemicals could be formulated to produce as many as 275 pesticides.

In sharp contrast, information on the poisonous effects of the chemicals are scarcely available to the public and users, said Dr Khwanchai Sombatsiri, of Entomology Department at Kasetsart University.

"It is worrisome that every year we hear reports about rice farmers killed by pesticide poisoning.

"The Government should do something to make available to farmers information about the toxicity of chemicals for agricultural use. They should be told which ones could be detrimental to their health; which ones harmful to environment," he said.

Another expert on pest control noted that LD (lethal dose) was the only information contained in the description of each chemical that indicated its danger.

LD, however, indicates the lethal doses of a pesticide for a mouse and a rabbit.

Dr Khwanchai said some international organisations had devised guidelines for rating chemical toxicity, but the Thai Government has so far been lukewarm on such recommendations.

The Food and Agriculture Organisation, for instance, has recommended its members to adopt a system of rating toxic substances into four categories: extremely hazardous, highly hazardous, moderately hazardous, and slightly hazardous.

"We should adopt it," the entomologist said, adding that studies should also be conducted on the effects of registered pesticides in the country's setting.

The licensing and registration of both imported and domestically- formulated pesticides are currently done under the framework of the Toxic Substance Act 1967.

Policy concerning the implementation of the act is under the direction of the Toxic Substance Regulation Board, consisting of representatives from the Agriculture Ministry, the Industry Ministry, and the Public Health Ministry.

Although the law was amended in 1973 to bring toxic substances for agricultural and industrial use under the blanket of government control, its system of rating toxicity is obsolete and misleading, said an Agriculture Department official.

Under the act, pesticides are classified into highly toxic and moderately toxic. The distributors and manufacturers of highly harmful substances are required to put the label of skull and cross bones on the containers.

"The purpose is to warn users to use extra care when handling the ones with the label. Unfortunately, it ends up with the label being put on nearly all toxic chemical bottles regardless of their different toxicity levels.

"Farmers are already unable to distinguish one chemical from the others. It's no wonder that they could not care less about their toxicity," he said.

The Agriculture Ministry has agreed to apply a similar system to classify pesticides and use colour strips representing different levels of toxicity to caution users, the official said.

However, he admitted that the practice has been optional for distributors, and the Toxic Substance Act needs to be amended so that the system could be realistically enforced.

"The initiative must come from the board to amend the law. It depends on how they see what should be done in the best interests of farmers.

"The farmers have every right to know how harmful the pesticides they buy would be," the official added.

Chanuan Ratanawaraha, chief of Agricultural Regulatory Division, said the ministry was about to upgrade its registration system for pesticide with the adoption of "phase registration."

Formerly, the Government was almost totally dependent on information provided by foreign pesticide industry for registration of any chemicals.

The new principle call for the experimental use of imported chemicals in the local environment, under

close supervision by local experts in three stages, which would take about two years, before the product can be fully registered and made available commercially.

"Since the passage of the law, we have gradually upgraded the registration system, aiming to meet internationally recommended standards," Mr Chanuan said.

But Dr Khwanchai expressed concern that government control might not be tightened soon enough.

The practice of mixing at least two chemicals to obtain a more effective but also more detrimental formula has already been found among Thai farmers, he said.

Health Ministry Comments on Pesticide Poisoning

91WN0285B Bangkok BANGKOK POST in English 3 Feb 91 p 9

[Article by Disathat Rotchanalak]

[Excerpts] Pesticide poisoning is perhaps one of the most widespread health problems among Thai farmers, but government figures reveal only the tip of the iceberg.

Quoting figures from the ministry's network for surveillance of diseases, Public Health Minister Piyanat Watcharaporn said in 1988 there were 4,234 cases of insecticide poisoning.

The network is currently the only means to regularly monitor health problems caused by toxic substances used in agriculture, which is among more than 50 illnesses listed in the ministry's patient report form.

One would get gross under-estimates however, if the network's figures were used as reference to indicate the seriousness of the problem.

"It is the tip of the iceberg," said toxicologist Sompool Kritalugsana. Recorded in the report are only cases that reached hospitals and health stations and not a great number of others where toxication was slight or the victims cured themselves.

Given that, the number of real cases would multiply if those unrecorded were included, Dr. Sompool.

With only a few hospitals well-equipped, most of the nation's health facilities are not capable of properly diagnosing chemical poisoning and treating the patients, according to Dr. Sompool.

Apart from technical difficulty, it is not mandatory for doctors to record the cases in surveillance reports.

Dr. Sompool said a senior doctor from the South told him that 45 patients received treatment for pesticide poisoning at his hospital alone in 1985. The ministry reported a total of 78 cases in the South for that year.

Perhaps the most serious flaw of the network lies in the fact that a sizable number of suicide poisoning is included. This further reduces the real number of contamination through occupation.

Some experts put the proportion of suicide cases as high as 60-70 percent of reported cases.

Concurring that statistics derived from the surveillance are only a fraction of the actual number of cases, Epidemiciology Division chief Vichai Chokeviwat said it was difficult to determine the magnitude of the problem.

"There are a number of cases which were successfully treated but not entered in the forms," he said.

To illustrate the point, he cited a survey on diarrhoea patients in Khon Kaen which revealed that out of 100 cases 27 patients sought treatment at public health facilities and seven cases were put in the records.

Although the ministry's figures could be described as the tip of the iceberg, Dr. Wichai said the trend, indicated by a rise in the number of reported cases from 3,213 in 1984 to 5,154 in 1989, reflected an increase in "severity" of pesticide poisoning.

In fact, more realistic assessments of health problems caused by excessive use of pesticides were revealed in surveys conducted by the National Environmental Board.

In a survey of 630 farmers attending a training programme for safe pesticide use in 1987, 48 percent told NEB that they suffered from pesticide poisoning.

Twenty-two percent of the participants said they experienced severe poisoning.

Last year, the agency concluded another survey, which supported the 1987 findings, showing that 51 percent of 238 farmers in a similar training programme reported reactions to exposure to insecticides, and 31 percent had severe symptoms.

While NEB's findings, which suggests that half of Thai farmers have experienced chemical poisoning, offers a more accurate picture of the problem, Dr. Sompool cautioned that wider surveys of average farmers are needed to confirm this.

He also suggested that the most reliable method to determine this was a blood test to check cholinesterase (CHE), an enzyme whose activity is inhibited by pesticide poisoning.

The NEB surveys relied on farmers' accounts of illnesses to identify pesticide poisoning.

Much less publicised and scarcely known are the findings of CHE test surveys by the Agriculture Department.

One of these surveys, participated by 683 vegetable garden farmers in seven provinces during the period from 1985 to 1987, shows that about 10 percent of the farmers had CHE levels below normal and thereby were at risk of pesticide poisoning.

Acute poisoning is not difficult to treat unless victims are seriously poisoned, said a doctor at a major hospital in

Nakhon Pathom. The province had the highest number of pesticide poisoning cases per 100,000 of the population in 1988.

Bangkok Official on Pollution Problems

91WN0267A Bangkok NAEO NA in Thai 6 Jan 91 p 2

[Interview with Bangkok Metropolitan Administration Undersecretary Thongto Kluai Mai Na Ayuthaya by Chariphon Taengmachaeng, date and place not given]

[Excerpt] [Chariphon] What are the main problems facing Bangkok?

[Thongto] Bangkok's main problems are its environmental problems. This includes polluted water and air, congested traffic, and slums. These things pose a great danger. But people haven't considered these dangers, because they are "silent" dangers. Take polluted water, for example. Studies conducted in Bangkok have shown that the canals here are very polluted. The 20-km section of the Chao Phraya River that passes through Bangkok has almost reached the crisis stage. There is almost no oxygen in the water, which will completely ruin the water. Bangkok's drainage pipes are joint pipes. Waste water is dumped into the Chao Phraya River. Estimating the degree of pollution of the canals in Bangkok, the BOD value is approximately 20-25 mg/liter, which is considered to be a dangerous level. The water is black and smells terrible.

As for air pollution, the situation is very worrisome because of the pollutants emitted by vehicles and industrial plants. Even the construction of buildings creates pollution. During the past 10 years, the amount of carbon dioxide in the air has increased 25 percent. In the slums, it has not been possible to arrange proper housing, and these slum areas have created other environmental problems.

The traffic problem is a major problem. This has already reached the crisis stage. In Thailand, about 400 more cars are put into service every day. This is necessary, because the country is developing. But the area available for expanding the communications routes is limited. As much as possible is being done to keep the situation from becoming even worse.

[Chariphon] What are the main reasons for the problems that have arisen in the capital?

[Thongto] The reasons stem from nature. But when large numbers of people come to live in a city, problems arise. Unless a good system is devised, that is, a good city plan, there will be many problems. There is still no overall city plan for Bangkok. A city plan is a master plan on the use of the land. Today, land use in Bangkok is haphazard, instead of dividing the city into zones and specifying which zones are to be used for housing, which zones are to be used for government facilities, and which zones are to be used for industrial purposes. The reason why there is no overall city plan for Bangkok is that there are disputes about which to formulate first, a general city plan or specific city plans. Actually, a general plan should be formulated first. The important thing is that those with interests to protect are trying to pull strings in order to make changes. For example, with respect to having green areas in order to reduce the congestion and giving people breathing room, some people are making an effort to do away with these areas even though these are important things that will affect various problems. [passage omitted]

Mining Projects in Forest Reserves 'Allegedly Approved'

BK0703072391 Bangkok THE NATION in English 7 Mar 91 p B1

[Text] Agriculture Permanent Secretary Yukti Sarikaphuti, in his capacity as acting minister of the ministry prior to the appointment of a new administration, allegedly approved at least eight mining certificates in national forest reserves.

The approvals closely follow the determined push by the Department of Mineral Resources to persuade the Agriculture Ministry to allow private mining companies to resume normal operations following the Chatchai administration's logging ban. In return, the companies had pledged to plant trees.

Sources said that the certificates were approved on Monday, Feb 25, the first working day after the military staged a surprise coup and dissolved the House of Parliament on the preceding Saturday.

Yukti, like the permanent secretaries of all other ministries, was charged by the military with performing all ministerial responsibilities until a provisional government was formed and a minister accredited to the Agriculture portfolio.

According to the sources, the mining certificates were approved even though agriculture and mineral resources officials have yet to complete the master plan on the zoning of reserved forest land, a crucial document that identifies the types and utilization of the land.

Yukti denied involvement in approving the certificates when asked by THE NATION, saying that he would be put into a difficult situation if he had signed them.

But the sources, who have seen the documents, alleged that the senior ministry official approved the applications of eight companies to explore mineral resources in six national parks around the country.

The eight companies and individuals reportedly awarded the contracts are Bunrot Brewery Co, Sophaphan Watcharaphong, Silasin Lampang (2522) Co, Cermas Co, Chaiya Yiamkoa, Chiam Yangchareon, Matan Wichitsrot and Sinrae Sahamit Agriculture Co.

They have been given permission to operate in reserved forest land in Chiang Rai, Chainat, Lampang, Tak, Ranong and Nakhon Si Thammarat. Most of the applications were filed late last year.

A senior forestry official criticized the approvals, saying that although it was in the acting minister's power to pass the mining requests, it was not an appropriate action given the lack of a clear-cut policy on the use of reserved forest land.

He said the decision on this crucial policy instead should have been left to the discretion of the accredited minister as a member of the provisional government.

Following last year's well-publicized arrest of Suan Kitti Reforestation Co. workers for alleged encroachment on national foreest land in Chachoengsao Province, the Agriculture Ministry was ordered by the Chatchai I administration to put the brakes on private reforestation and review the nation's forestry policy.

Consequently, former Agriculture Minister Sanan Khachonprast assigned the Forest Department to conduct a study into the zoning of forest areas and corresponding uses in order to accommodate his policy to promote private reforestation, said a highly-placed ministry source who asked not to be named.

The zoning will determine areas to be reserved for economic use, conservation or agricultural land reform.

The original zoning study was publicly attacked by miners who wished to prospect for valuable mineral resources in forest areas. They successfully lobbied the Industry Ministry, which later decided to ask the Agriculture Ministry to review the zoning policy.

Sanan subsequently set up a tripartite committee comprising representatives from the Industry ministry's Department of Mineral Resources, the Agriculture Ministry's Forest Department and the national Environment Board to undertake the revision. The revised draft zoning is almost finished.

He also appointed a subcommittee chaired by Sa-nga Sapphasi, permanent secretary of the Science, Technology and Energy Ministry, to review the government's policy toward rehabilitation of denuded forest.

Sanan's two successors, Chuan Likpai of the Democrat party and Solidarity's Narong Wongwan, who held the portfolio at the time of the coup, had been waiting for the tripartite subcommittee to conclude its study on the revised zoning.

Although Narong himself announced a revival of large private reforestation projects, he still had to wait for the zoning to be completed.

Editorial Questions Emergency Forestry Measures

BK1503053391 Bangkok BANGKOK POST in English 15 Mar 91 p 4

[Editorial: "Emergency Laws"]

[Text] Almost two decades ago when the country was mired in a bitter and bloody struggle against the communist menace, the powers-that-be then, on countless occasions, cited security reasons to justify their actions purportedly aimed at enhancing security or countering elements perceived as security threats. The orders issued or the actions taken on grounds of national security were treated as final—which meant they were not supposed to be questioned or challenged. Nor was any detailed explanation needed to justify such orders.

Given the domestic ideological polarisation and the spectre of a menacing insurgency threat financed by foreign communist powers looming at the time, there was no denying that such summary military actions might have been necessary to deal promptly and effectively with what constituted something close to an emergency situation.

But now that the once-serious communist threat has largely dissipated and become almost nonexistent—and with the emergence of regional rapproachement replacing the era of confrontation—it is ironic that certain elements in the security apparatus still have not woken up to present-day realities and still try to justify dubious schemes in the name of national security even though lacking credible explanations for such schemes.

One recent example is the joint decision by the Third Army Region and the Forestry Department, citing security reasons, to allocate another 29,000 rai of forest land in Phop Phra District of Tak, in addition to some 100,000 rai earlier set aside, for the resettlement of 2,000 families of tribesmen to be evicted from Thung Yai Naresuan wildlife sanctuary.

According to a reliable report, the allocated land is located in fertile forest which is the source of the Valley stream that flows along the Thai-Burmese border. Logging is said to have already been started by a timber company to pave the land for the planned resettlement. A ranking army officer also insisted that the 100,000 rai earlier set aside is more than enough to accommodate the tribesmen and to provide them with a means of living.

The consent or apparent condonement of what constitutes further destruction of the remaining precious forest reserves is tantamount to violation of the nationwide logging ban imposed by the previous administration, which remains in force. It is, indeed, an irony that while private timber firms and sawmillers are banned from logging, two government bodies should choose to give their blessing to forest poaching. More ironical is that this seems to be done in a legitimate manner, ostensibly in the name of security.

Entrusted with the responsibility to protect the country's alarmingly shrinking forest land, the Forestry Department should have stood up against the military-initiated resettylement scheme on justifiable grounds. But unfortunately, it failed to do so. A promise by the department chief to investigate the case does not hold much hope either.

Although the Forestry Department and the Third Army Region should be commended for their good intentions in moving the hilltribe encroachers out of Thung Yai—a

natural heritage which should be preserved at all costs—the rationale of allocating additional land in fertile forest for their resettlement is questionable.

Security alone—either perceived or real—should not justify the destruction of forests in such proportion that is likely to cause adverse environmental impact and affect national interests. It is not too late for the security authorities concerned and the Forestry Department to rethink their position and devise alternative solutions to the resettlement problem. Exploitation and destruction of the country's forests in the last few decades have been blatantly excessive. Therefore, it is the responsibility of all parties concerned to expend all possible efforts to preserve what is left for present as well as future generations.

VIETNAM

Urgent Measures To Protect Forests and Environment

91WN0279A Hanoi TAP CHI CONG SAN in Vietnamese No 8, Aug 90 pp 48-51

[Article by Vu Xuan Kieu]

[Text] Vietnam is situated in a tropical monsoon climate. Throughout the nation's long history—as will be true in the future—the forests have always played a major and all-round role in supplying forest products to support production and consumption. They have always been a very important factor of the living environment.

In recent years, forestry in Vietnam has made important strides. We have gradually developed and expanded forestry based on the guideline of having forest protection and development serve as the central tasks. We have implemented an agricultural-forestry formula and formulated policies to encourage the people to engage in forestry in accord with the policy of turning over forest land and forests to the people to manage and engage in production. The country has planted more than 1.9 million hectares in concentrated forests and more than 5.5 billion dispersed trees. Each year, we have felled approximately 3 million cubic meters of timber and harvested many types of forest products to serve production and consumption.

In the world, tropical forests cover 10 percent of the earth's area. They are man's valuable storehouse with respect to animals and vegetation.

Scientists in world have calculated that the world's tropical forest area has declined up to two-thirds. Unless urgent measures are implemented now, by the year 2010, the tropical forests will have disappeared from our planet.

In Vietnam, because forest destruction has been going on for many years, our forest resources have been seriously depleted. In the past 30 years, the forest area, as compared with the total natural arable land area, has declined from 41 percent to only 28 percent. Since 1945, almost 5 million hectares of forests have disappeared here. Of the approximately 9 million hectares of forests that remain, only about 3 million hectares have good and average reserves. The percentage of forest covering nationwide has dropped to only 28 percent (only 24 percent in the north). This serious decline in our forest resources will not only limit our ability to supply forest products for the economy but will also do serious damage to the environment. The protective capabilities of the forests, such as their ability to preserve soil and water and control storms and droughts, have declined to an alarming level. Because headwater forests have been destroyed, each time there are storms, hundreds of thousands of tons of humus are washed away, the large rivers become clogged, and the rivers become narrower and narrower. Not only does this cause difficulties for communications and transportation, but what is even more dangerous, this also destroys the dikes and causes flooding for agricultural production.

Many tropical forest researchers in the world have affirmed that the present rate of destruction of tropical forests is very high. Each year, almost 20 million hectares are destroyed, and almost 10,000 types of animals and vegetation become extinct.

It has been calculated that unless measures are implemented to stop this, the world's tropical forests will be completely destroyed. This will have a direct effect on 1 billion people. Of these, about 200 million whose lives depend on the forests will have to move to look for work somewhere else. In Vietnam, although attention has been given to stopping the destruction of the forests, in my view, this is still a very serious problem here. Thus, more effective measures must be implemented to save the forests, which means saving the ecological environment, production, and the lives of hundreds of thousands of people.

Preventing forest destruction, protecting the existing natural forests, replanting forests, and planting new forests on millions of hectares of empty land and bare hills must be regarded as an urgent task in order to stabilize and expand the forest economy, limit as much as possible the damage done by storms, floods, sand storms, and the heat, preserve and stabilize the water sources for water conservancy and hydroelectric projects, and stabilize and expand agricultural production. The consequences of forest destruction during past years affirm the important position of forests with respect to agriculture. To expand agriculture in a stable manner, attention must be given to protecting the headwater forests and to quickly planting trees to protect the fields.

Our country's tropical forest potential is very great and varied. If we can learn how to exploit this strength, in coming years and over the long term, we will be able to produce a wide variety of forest products for export and transform tropical forest products into one of the export spearheads.

According to data of the Ministry of Forestry, Vietnam has approximately 19 million hectares of forests and forest land (which is almost 60 of the country's arable land area). In this, there is approximately 9.3 million hectares of forests and 10 million hectares of empty land and bare hills. Today, we are felling approximately 2 million cubic meters of timber a year. If we organize and

make good use of this forest land, each year we can fell tens of millions of cubic meters of timber and obtain a large volume of forestry and agricultural products.

Vietnam is rich in tropical forest resources. The basic natural conditions are favorable for expanding the forests. We have a large number of laborers, and the party's renovation policies have created favorable capabilities for developing forestry and turning it into an important economic sector. The question is how to stop forest destruction, enrich the forests, and obtain and effectively process forest products.

In order to protect our forest resources and effectively implement commercial forest operations, I would like to mention the following 10 points:

1. Based on national planning concerning a rational percentage and allocation, basic investigations must be made concerning the forests and forest land in order to have a basis for formulating general projects and setting strategic guidelines for expanding forestry between now and the year 2000 with the aim of satisfying the need for forestry products and protecting the environment.

2. There must be a system of synchronized, resolute, and strong measures in order to establish new order in organizing, managing, protecting, and making effective use of the forests. In this system of measures, attention must be given not only to administrative measures of a prohibitive nature and to motivational and educational measures but also to measures to stimulate the economic interests of laborers. Also, real attention must be given to the lives of the tribesmen.

3. Implementing a coordinated agricultural-forestry formula is an important measure for exploiting and using the forests and forest land in the most effective way possible. As we know, forest products include other things besides timber. There are also grains and many special products. Exploiting the potential of the forest land based on a coordinated agricultural-forestry formula cannot be carried on in an arbitrary way. This must be done in a scientific manner in accord with the technical regulations, and things must be tightly controlled based on rational and all-round plans. Depending on the natural, economic, and social conditions in each locality and zone, a specific coordinated formula must be formulated. In one place, afforestation can be coordinated with the cultivation of grain and industrial crops. In another place, afforestation can be coordinated with animal husbandry or with the cultivation of medicinal plants and special product plants. The end goal is to somehow use each each plot of land and forest to produce a large volume of products of high economic value and, at the same time, to increase the fertility of the arable land, protect the environment, create a beautiful environment, and improve the material and spiritual lives of the people.

4. Implementing a policy of transferring land and forests to the collectives and families to manage is the right way to vary forest and forest land ownership forms in our country. (Because of the special nature of forestry with its long production cycle, forests and forest land can be transferred for hundreds of years.) This will make it possible not only to exploit the capital and manpower potential of the people but also to end the indifference of the laborers with respect to the forests and forest land and get them to participate in managing and protecting the forests.

5. Based on formulating general plans concerning forests and forest land, the forestry business must be reorganized in line with consolidating and expanding the state enterprises in places where the terrain is difficult. There are forest or forest land areas in which the collectives and private individuals are not interested in investing, or they do not have investment capabilities. The state economic units that have been carrying on forestry operations at a loss for a long time must resolutely be restricted by reducing ownership and transferring the land to commercial collectives or families. Private individuals must be encouraged to invest in developing the forests and obtaining and processing forest products in accord with the general plans under the control and regulation of the state.

6. Varying the ownership forms will necessarily lead to dividing the profits and ensure the income of each ownership form. To talk about ownership is to talk about profits and income, including individual profits, the incomes earned by individuals through their own labor. This is always a very important direct motive force for stimulating production.

Stimulating the economic elements belonging to various ownership [forms] to become wealthy through labor strength and management capabilities must be expanded in order to generate larger incomes. But there must also be policies to regulate the incomes generated from ownership. Steps must be taken to control incomes that are not directly generated by labor, and illegal activities must be eliminated.

7. The state must implement a suitable investment policy to build a material and technical base for forestry, expand the highway system, expand the means of communications and transportation, and expand the means for processing timber, forest products, and special products. In particular, suitable amounts must be invested in protecting the forests, planting trees, and nurturing the forests, which are activities that make high scientific and technical demands.

8. New laws must be promulgated, and the legal system on forest protection and commercial forest operations must be perfected. Individuals and collectives who violate the laws, engage in corruption, steal things, or destroy national property must be dealt with harshly regardless of which echelon they are at or to which economic element they belong.

9. A national committee must be established immediately in order to investigate forest destruction and the effect of this on the environment. It must then submit proposals and urgent solutions in order to stop this promptly.

10. The forestry management apparatus must be reorganized based on a spirit of renovation. The circulation of forestry and agricultural products must be organized well, and the tribesmen's need for grain and firewood must be satisfied.

BULGARIA

Radioactive Waste Storage Problem at Kozloduy Plant

AU1403221491 Sofia BTA in English 1824 GMT 14 Mar 91

[Text] Kozloduy, March 14 (BTA)—"The Kozloduy Nuclear Power Plant has a problem storing radioactive waste; the problem goes back to the design which omitted to provide long-term storage depots," an expert of the plant's Safety and Control Department said.

The depots of the first four generating units in one building are full. The depots in the second building are unusable because of leaking water. Unit 5 went into operation without the design installations for bituminizing liquid radioactive waste, for burning the flammable ones, for pressing the solid ones and for recycling of radioactive oils. Unit 6 will also go into operation without an installation for the processing of solid and liquid waste. They only rely on the expansion of the tank capacity of the Special Building No. 3.

A Bulgarian expert, Associate Professor Todor Dimchev, claims that the Kozloduy Nuclear Power Plant produces more waste than planned. In 1990, in five months alone, Unit 5 produced 25,844 cubic meters of liquid waste, which is the quantity projected for an entire year. Every year one-third of the fuel in the plant is replaced.

The radioactive waste storage and recycling problem is alarming and concerns not only the plant in Kozloduy; it is of national importance. The government must take measures for its solution before it turns into an environmental disaster. Moreover, it is unclear when and on what terms the Soviet Union will accept this waste—if at all, after the Russian Parliament decreed on June 28, 1990, to ban the burial of radioactive waste imported from the other constituent republics or from abroad on Russian territory. Even if the waste is accepted for processing, the payment will be in hard currency, i.e. about 1,000 U.S. dollars per kilogram of waste.

Measures Planned To Warn Population of Radiation Accidents

AU1503140191 Sofia Domestic Service in Bulgarian 1000 GMT 15 Mar 91

[Telephone report by Ivan Obretenov from the Council of Ministers building in Sofia—live]

[Text] Good day. I apologize if the telephone line is not perfect.

Today, under the order signed by the prime minister on 5 March, the newly constituted Permanent Government Commission for Combating Natural Disasters and Major Industrial Accidents met for the first time about two hours ago at the offices of the government. The chairman of the commission is Mr. Aleksandur Tomov. I may mention that one of the former chairmen of the old commission was Mr. Grigor Georgiev Stoichkov [former candidate member of the Politburo of the Central Committee of the Bulgarian Communist Party].

I can announce that at its first meeting today the present commission examined a plan for taking urgent actions to protect the population and economic installations in the event of a general radiation leak from the Kozloduy Nuclear Power Plant. There is no time to explain why I think the following is true, but it is my impression that, with its new membership, the commission will do what is necessary to ensure that the word radioactivity no longer inspires terror in the minds of some people. Be this as it may, it became clear today that a mechanism has already been created which each and every day will ensure the provision of centralized information on the radiation situation in the country. This will be done through the Civil Defense headquarters. As far as I personally am concerned, I will assume personal and direct responsibility to seek channels in order that this data should no longer be reserved only for the information of the top dogs.

Ecological Situation Deteriorates in Ruse

AU2203213191 Sofia BTA in English 2026 GMT 22 Mar 91

[Text] Ruse, March 22 (BTA)—Ruse's regional environmental protection inspection gauged a chlorine ion concentration in the air which exceeded the admissible limits on March 9, 10, 13 and 19. Thirty-two samples were taken at the four monitoring stations in Ruse on March 20, which showed a concentration of chlorine ions exceeding the average daily norm by 1,46 times. The experts were not able to locate the contaminant.

The concentration of sulfur dioxide in the air in Ruse has increased in the last two weeks. Yesterday it was 1.1 times above the admissible level. The experts believe that the explanation for it is the use of ordinary, instead of low-sulfur fuel oil, in the winter months, which led to a 15-20 percent increase of the sulfur dioxide concentration in the air in Ruse.

CZECHOSLOVAKIA

Minister Objects to Government's Fuel Price Policy

AU1203124591

[Editorial Report] Prague MLADA FRONTA DNES in Czech on 6 March on page 3 carries an 800-word article by Minister Josef Vavrousek, chairman of the Federal Committee for the Environment, entitled: "The Environment and Energy Prices." In the article, in which he examines the relationship between energy prices and environmental protection, Vavrousek expresses objections to the Federal Government's fuel price policy. He says that the wholesale and retail prices of "all forms of energy" (that is, including electricity) should have been raised at the start of the economic reform because any delay aggravates not only the economic but also the ecological situation. He also argues that the extent of the

price increase should "reflect the degree to which the consumer can realistically react to the price development."

In this context Vavrousek criticizes the Ministry of Finance proposal for raising energy prices, which is concerned only with the elimination of current subsidies. Under this proposal, electricity prices would remain unchanged because electricity is generated rather cheaply and the current electricity price is not subsidized, while the price of heat would go up 324 percent. Vavrousek objects that this price increase "would only reinforce the position of monopoly suppliers of heat" and would not provide them with any incentives to eliminate the "enormous losses" in heat generation and distribution. Besides, heat consumers would be unable to adjust their behavior because the centrally heated apartments in the new housing developments are not equipped with any heat measuring and control devices. Moreover, because the price of electricity would remain unchanged, there would be an "uncalled-for transfer of demand." Vavrousek also cautions that the relatively low electricity production costs are deceptive because damage to the environment resulting from coal mining and coal burning is not included in the production costs.

The minister therefore appeals to the Ministry of Finance and the Ministry of Economy to cooperate with environmentalists and "find such a variant of raising the prices of all forms of energy as would stimulate energy conservation and the development of ecologically compatible methods of energy production and consumption."

HUNGARY

Defense Official on Damage Caused by Soviet Troops

AU0703144791 Budapest NEPSZAVA in Hungarian 4 Mar 91 p 5

[Interview with Major General Imre Karacsony, deputy government commissioner in charge of the withdrawal of Soviet troops from Hungary, by Frigyes Varju; place and date not given: "What Remains After the Withdrawal of Soviet Troops?—Environmental Pollution in the Area of Papa, Kalocsa, and Baja"—first paragraph is NEPSZAVA introduction]

[Excerpts] As we already informed the readers, the fuel leaking from the former Soviet military airfield in Sarmellek polluted the lands and several water wells of this village. We asked Imre Karacsony about this. Imre Karacsony is well aware of the financial and environmental factors of the troops' withdrawal because, as the practical head of the Hungarian negotiating delegation, he participates in the often tense coordinating meetings almost daily.

[Varju] How serious is the environmental damage in Sarmellek?

[Karacsony] What we can see there is simply shocking. We carried out the tests on the basis of Hungarian and Soviet methods and we came to the conclusion that the oil pollution is extremely serious in this area. We do not even dare evaluate the real extent of the damage. The fact that Sarmellek lies between the former Soviet Army base and the Small Balaton Lake is particularly alarming because we do not know whether this pollution has also seeped into the water. On the basis of our conclusions from the area, we think that great damage has been caused there.

[Varju] What was the first Soviet reaction to all this?

[Karacsony] They themselves were shocked, because Soviet experts were also there and had the opportunity to see the facts. You also saw the video recording we made there when we set fire to the water we took from the water wells. These wells are full of chemicals. So far, we have discovered pollution in 15 wells, but we do not know how this pollution will spread. [passage omitted]

[Varju] How would you characterize the environmental damage caused by the Soviets on the basis of your experience so far?

[Karacsony] I am convinced that there is considerable pollution in forests, pastures, and military exercise fields! For example, the damage in the Papa area amounts to 75 million forints; the damage in Kalocsa amounts to 100 million forints; and the damage in Baja amounts to 63 million forints. Naturally, there is a debate over these values.

[Varju] Are there similar differences of views in the other areas of the troops' withdrawal?

[Karacsony] Of course. Generally, we are arguing about everything. We must understand that it is impossible to smoothly solve problems that have been swept under the carpet for decades. [passage omitted]

[Varju] As far as I know, negotiations are under way about 6,000 buildings, but most of these buildings can only be used for military purposes. How will we pay for them if they are unsuitable for civilian use?

[Karacsony] The Hungarian side regards Article 8 of the Hungarian-Soviet agreement of April 1958 as the starting point in the course of negotiations. This article stipulates that we will pay for the projects built by the Soviets only by taking into consideration the amortization and applicability. The Hungarian Armed Forces have a minimal demand for additional airfields, barracks, and firing ranges because they already have all these. In other words, 90-95 percent of the buildings to be returned by the departing Soviet troops will be sold for civilian purposes anyway, and at market prices. [passage omitted]

POLAND

Environmental Damage Caused by Soviet Army Examined

AU1903151191 Warsaw GAZETA WYBORCZA in Polish 14 Mar 91 p 3

[Report signed 'jz': "What the Soviet Army Will Leave Behind"]

[Text] "The Soviet forces in Poland do not observe Polish environmental laws. They illegally dump oil derivatives into rivers and canals. They deposit various kinds of waste in forests. Some of which might even be radioactive," Zbigniew Kamienski, director of the Control Department of the State Institute of Environmental Protection, told GAZETA on Wednesday.

Huge fuel dumps containing fuel to be used in time of war, completely unprotected, were discovered quite by accident in Raszowka, Legnica Voivodship.

At Stara Kopernia, Zielona Gora Voivodship, some 10,000 hectares of land and water have been polluted with waste. Some 3,000 tonnes of this waste have polluted the water used by the local population. Damage has also occurred to the forest. This may be considered an ecological disaster, says a special report by the State Inspectorate for Environmental Protection.

A similar level of environmental damage has been determined at Szprotawa, Swinoujscie, Kluczew, Chojna, Brzeg, Krzywa, Bagicz, and Wedrzyn, all of which have Soviet garrisons.

It could take up to 20 years to repair the damage in just one garrison, but there are 35 garrisons in all. "Investigating the extent of the damage alone will cost between 100 and 200 billion zlotys," said Z. Kamienski.

In the meantime, the Polish environmental inspectorates are unable to inspect the damage because the chief of the Soviet forces in Poland, Colonel-General Viktor Dubynin, refuses to grant permission to enter all the Soviet bases.

The withdrawal of the Soviet forces will probably start in April. If it takes place without our control, there will be an environmental disaster. "I fear that could be the price we might pay for a premature departure of the Soviet forces from Poland," said Z. Kamienski.

Warsaw Voivodship Lists Major Polluters

91WN0225B Warsaw ZYCIE WARSZAWY in Polish 7 Jan 91 p 8

[Article by Joanna Halena: "Unpunished Pollution Will Stop"]

[Text] Five plants from Warsaw Voivodship are on the list of the country's worst environmental polluters which, at the same time, are doing too little to protect the environment. These are: the Polfa Pharmaceutical Plants from Grodzisk, the Siekierki Heat and Power Plant, the Warszawa Steelworks, the Piastow Battery Plants and the RSW [Workers Cooperative Publishing House] Prasa Plate Printing Plants.

The voivodship list has also attained considerable proportions. For now, 18 different industrial plants have been placed on it. However, as stressed by Deputy Voivode Zdzislaw Tokarski, the list remains constantly open. Other firms and plants that are damaging to the environment will soon be added on.

The Environmental Protection and Forestry Department under the voivode is preparing a veritable raid this year. Frequent and unexpected inspections will make it possible to find all toxic polluters, both the major ones as well as the very minor ones. The Ursus Machinery Plants, the Belwederska Bakery Plants from Szwolezerow Street, the PZL—Wola Machinery Plants, the Yeast and Alcohol Industry Plants of Jozefow near Blonie, the Warsaw Poultry Plants in Karczew, the Mazovian Fruit-Vegetable Industry Plants in Tarczyn, the Zelos Monochromatic Picture Tube Plants in Piaseczno, and the Powisle Heat and Power Generating Plant in Warsaw—these are the leading polluters thus far. The list is supplemented by four Agricultural Production Cooperatives: from Chelbnia, Czaplin, Prazmow, Henrykow; by the District Dairy Cooperatives in Jablonna and Grodzisk Mazowiecki; the Dairy Plant in Leszno, as well as airports.

However, not only manufacturing plants have been branded. Entire municipal bodies have found themselves on the list of environmental polluters: Wolomin, Nowy Dwor Mazowiecki, Legionowo, Lomianki, Gora Kalwaria, and Pruszkow. After conducting an inventory of municipal property, the same fines and restrictions will be placed on cities and towns that constitute an ecological threat as on production plants that are a burden to the environment. Such a decision was made by the voivode of Warsaw.

All plants and cities or towns that will ignore the deadline set by the Department of Environmental Protection and Forestry for the construction of pollution control systems will face the consequences. However, this time these will not be in the form of fines only—which did not frighten very many. As announced by Deputy Voivode Zdzislaw Tokarski, the penalty for the destruction of the environment caused by the polluters will be the limiting of their production and, in the case of the worst, obstinate offenders, even closing down the enterprise.

At the same time, the Department of Environmental Protection and Forestry has promised to help all those self-managements which had begun appropriate investments earlier but cannot finish them due to lack of funds. Owing to such assistance—WOSiL [Department of Environmental Protection and Forestry] has appropriated 2 billion zlotys—the construction of a treatment plant will be completed soon in Blonie.

"It is not our aim to play the role of prosecutor and punisher," states Deputy Voivode Zdzislaw Tokarski. "The ignoring of ecological problems by plants and self-governments may result however in that we will be forced to resort to even the most drastic methods."

Effects of Pollution on Children in Upper Silesia

91WN0225A Warsaw GAZETA WYBORCZA in Polish 18 Jan 91 p 8

[Article by Grzegorz Gorny, reporter cooperating with GAZETA WYBORCZA: "The Children of Chorzow and Municipal Grounds Maintenance"]

[Text] The Austrian weekly PROFIL published an article on ecology and photographs of infants. I have seen such pictures in the Polish press only in reports from the Third World in incidents involving napalm or cholera epidemics. The title of the article: "Children of Chorzow."

I went to the children's hospital in Chorzow. I passed through one small ward of 20 m^2 containing six small beds. "Don't worry," I was told by the ward head when she saw my face. "Medical students pass out here so frequently that it is necessary to interrupt classes every five minutes, carry them outside, and revive them."

Doctor Anna Kasznica-Kocot says that 55 percent of the infants require medical treatment after birth. One out of five has rickets, one out of five—anemia; apart from this, the children suffer from leukemia, hypoxia, pneumonia, and bronchitis. Frequently [they suffer from] several diseases concurrently.

The placentas of all pregnant women in Upper Silesia are receptacles for the accumulation of zinc, nickel, bromine, mercury, lead, and strontium. Twenty percent of the women give birth prematurely; one out of five newborns does not even weigh a kilo and a half; chickens sold near the hospital weigh more.

Nine out of 10 women who smoke give birth prematurely. One out of three mothers who smoke gives birth to infants with a so-called dystrophy syndrome, i.e., heart and respiratory defects, intracranial bleeding, and intrauterine infections.

In Sweden, five infants die for every 1,000 born. However, in one of the districts of Bytom-Rozbark, 52 die.

Krzys is in Dr. Kasznia-Kocot's ward. He is three months old and has a blood infection, sepsis, anemia, and pneumonia. He has had eight blood transfusions. His mother did not want to donate her blood to him. When notified that she was needed, she ran away from home. Rubber tubes used for administering injections protrude from his head and that of the other children lying here.

Many of the children do not have hair because they came to the hospital infected with lice and it was necessary to shave them. However, a little girl by the window is bald for other reasons. She tears out her hair and eats it. She has a serious neurosis, is two years old and weighs two kilos—just as much as her seven-month old brother. The parents do not want her or him.

Dr. Bujok is in charge of the adjacent ward with more seriously ill children. A child considered to be "less seriously ill" in the hospital in Chorzow, is the kind that has hypoxia, anemia, pneumonia, or bronchitis. Just as previously, Dr. Kasznia-Kocot repeated every few minutes, pointing with her finger either to the right or left: "This one will go to the orphanage, this one to the orphanage...." So now, Dr. Bujok's finger points to some small beds, one by one: "This one will die, so will this one, and this one...."

The ward has six beds. The doctor feels that if even one child makes it, this will be an accomplishment.

A boy with hydrocephalus is in the bed near the door. His skull, the size of his entire body, is covered with red swollen sores with black scabs. The child has a valve mounted in his head which regulates the level of cerebral fluid. However, a purulent brain infection has developed. "He will die during the night," comments the doctor.

The same thing is in store for the next child. He has rachischisis [separation of the spine]. Dr. Bujok uncovers the sheets. The spinal cord, totally uncovered and unprotected, separated from the rest of the body, is lying on the child's back like an empty, pinkish-purple sac. The doctor points with his finger to where the pus has reached—soon it will reach the brain.

The odor of decomposing flesh—flesh decomposing during life hovers over the ward.

A 10-year old boy is dying in the ward with older children. He has a temperature of 40 ° C. "It's only a matter of minutes," informs the nurse. The child's huge head contrasts with his terribly gaunt and oddly twisted limbs. All the bones are visible and the boy looks like a skeleton with skin stretched over it under which one can see a long, swollen vein running in a zigzag. The doctor touches it lightly and it writhes like a snake under a rug.

Doctor Bujok appears cynical and somewhat nonchalant but this is only a facade. If he were to expose his feelings, he would simply go mad. He cannot hide his emotions when we enter the operating room. He shows me a small, unpretentious-looking device lying on a scraped, white stool.

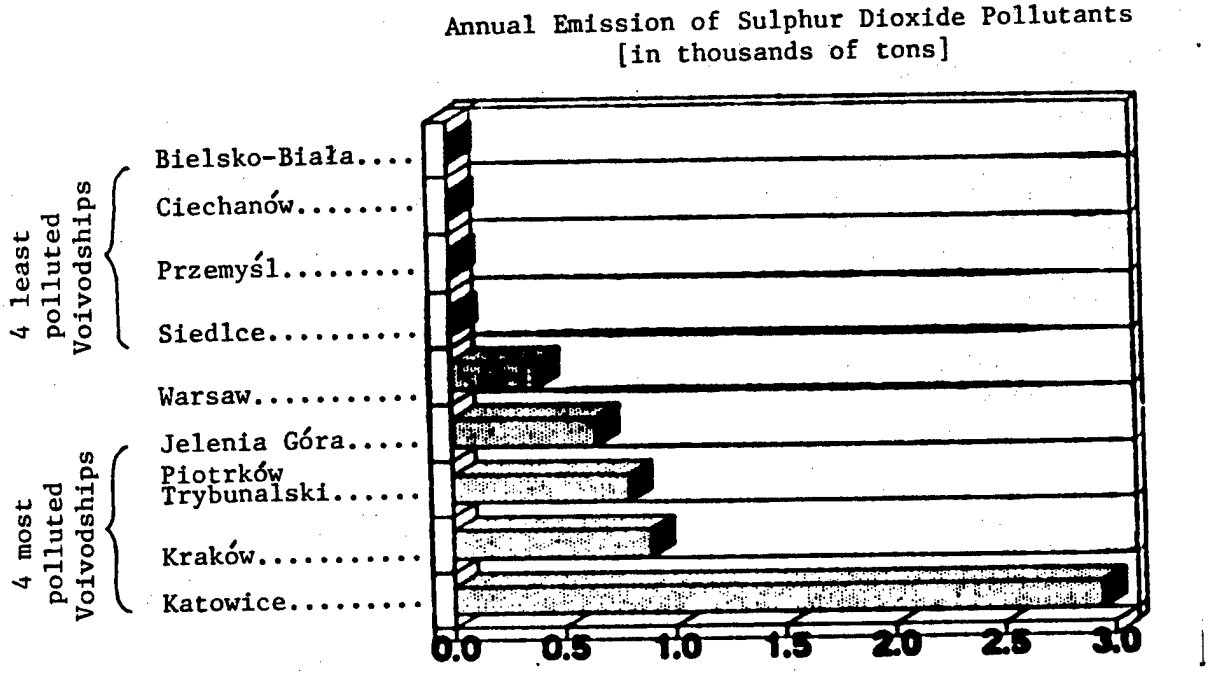
"This respirator is of Dutch production; it is 11 years old and can break down any minute. This is the only device capable of keeping a child alive during an operation. There is only one respirator. Yesterday, two children needed it. I had to choose between the life of one or the other."

"The worst part," concludes Dr Bujok, "is that both children died."

Similar situations are not uncommon in this hospital. There is only one oxygen tent for neonatals that is taped up and is falling apart from age.

Money for the health service is lacking. It was not until last year that a life support ambulance for children came on the scene in Katowice Voivodship. It is in this ambulance that the most seriously ill children are taken to Zabrze. "Because," explains Dr. Kasznia-Kocot, "the most serious cases are not hospitalized in Chorzow. These are brought to the Neonatal Pathological Clinic in Zabrze."

Last year, Zabrze was recognized as the most polluted city in the world.



Upon leaving the hospital, I see a "Nyska" [type of car] belonging to the Municipal Grounds Maintenance drive up to the hospital courtyard. In five minutes, it will leave this place carrying off the next bodies. Three people—eight kilos.

Silesia: Infant Mortalities Tied to Pollutants

91WN0266A Warsaw GAZETA WYBORCZA in Polish 1 Dec 91 p 8

[Article by Grzegorz Gorny: "Ecological Lament From Silesia: Prayers About the Wind"]

[Text] Benzoalphapyrene is highly carcinogenic. In Upper Silesia there are settlements where concentrations of this pollutant are more than 3,000 times permissible levels.

The wind is the subject of Chorow residents' prayers. Chorzow is situated in a fault trough, and given the absence of wind, the most poisonous gases accumulate here. This is how it works: The Kosciuszko Steelworks, with its chimneys, is at the very top; further on and a little lower is a children's hospital, and a nursery is still further down. When there is no wind, the smoke from the chimneys rolls down the hill, and the preschool teachers grab the children and take them inside the nursery. The smoke settles lower and lower, and the mothers visiting the hospital shout to the doctors and nurses: "Please close the window!"

Children die in the hospital. Infant mortality in Upper Silesia is higher than anywhere else in Europe.

In Gardawice, Orzesze, Laziska, and Mikolow people pray that there be no wind. Last March, when there was a wind storm in Southern Poland, the largest ash dump in Laziska, with over 100 hectares, came to life. This was not the first time that the unyielding toxic dust, as fine as silt, covered the furniture, seeped into refrigerators, and infiltrated food cupboards. Nearby fields were covered with a layer several centimeters thick.

There are many such dumps in Upper Silesia. About 1.7 billion tons of industrial waste has accumulated in Katowice Voivodship, enough to cover the entire voivodship to a level equal to the average person's height.

Wholesome Food

Nearly half of Katowice Voivodship is made up of farmland, orchards, and vegetable fields. Ecologists warn that fruits and vegetables should not be cultivated at all. The amount of lead in the ground is 20 times the acceptable level. Lead attacks the peripheral nerves and brain, causes debility, paralysis, and personality disturbances.

In Szopienice, where lead was detected, one child out of every two was mentally retarded, and one out of every three was epileptic.

At the open markets, residents of Upper Silesia do not want to buy fruits and vegetables grown in that region. Tailgate peddlers therefore change their Katowice license plates for Sieradz, Siedlce, or Piotrkow Trybunalski plates. They brag about "wholesome food."

Volcanic Fate

There is no healthy plant life in Upper Silesia. Trees do not live long. By July they are already beginning to lose their leaves. The area sprawling behind the nonferrous

metals plant in Szopienice looks like a desert. The soil is lifeless. As on rock, nothing wants to grow there.

At the Ecological Club in Katowice, people say that the Silesian forests are artificial. Tree varieties that can withstand extreme conditions have been brought in, such as the red oak, black pine, and Japanese larch, which grows near volcanic craters in Asia and is resistant to sulfur fumes. Real forests, like the one in Zyglin, die, seared by the fumes.

Two Buckets of Water

The dirtiest, most populated voivodship in Poland needs the most water. Meanwhile, the average resident of Upper Silesia uses one-ninth as much water as the other residents of Europe do. To avoid secondary contamination, often nobody washes the streets on rainless days, so that a minor gust of wind raises clouds of dust.

During peak water use hours, the Silesian water shortage reaches 200,000-300,000 cubic meters per day. This happens in situations where the water supply systems are working at full capacity, but water use can be called exploitative. The pumping of water from underground springs exceeds the natural flow. Even now the water table has declined by several dozen meters, and ponds show a slimy bottom. Thousands of residents in Upper Silesia can talk about being lucky to have been able to draw two buckets of water at night.

What sort of water is this? Dirty, contaminated. In Upper Silesia 64 percent of the water is not even fit for industrial use. There is a shortage of water treatment plants. The radiometry laboratory at the Main Mining Institute in Katowice has also discovered that the brackish water coming out of over a dozen mines contains dangerous concentrations of radioactive radium. Up until now, the safety provisions at these places have been successful. For how long?

REGIONAL AFFAIRS

Brazil, Uruguay Sign Quarai River Basin Agreement

PY1303183591 Rio de Janeiro O GLOBO in Portuguese 12 Mar 91 p 3

[By special correspondent Guilherme Evelyn]

[Excerpts] Quarai, Rio Grande do Sul—On 26 March, Paraguay and Uruguay will be formally incorporated into the Southern Cone Common Market (Mercosur) that has been created by Brazil and Argentina. The end of the negotiations for the incorporation of Paraguay and Uruguay to the Mercosur was announced yesterday in an 18-point joint communique signed by Brazilian President Fernando Collor de Mello and Uruguayan President Luis Alberto Lacalle Herrera at the border between Quarai in Brazil and Artigas in Uruguay, 630 kilometers southwest of Porto Alegre, capital of Rio Grande do Sul. [passage omitted]

Brazilian Foreign Minister Francisco Rezek and Uruguayan Foreign Minister Hector Gross Espiel have signed a cooperation agreement for the utilization of the natural resources and the development of the basin of the Quarai River which marks the border between the two countries. This agreement seeks to resolve environment preservation problems and to foster industrial and agricultural endeavors. [passage omitted]

BRAZIL

Deforestation of Amazon Forest Said Declining

PY0703135491 Brasilia Domestic Service in Portuguese 2200 GMT 6 Mar 91

[Text] Deforestation is diminishing in the Amazon region and the government foresees the elimination of the destructive practice within six years at the most.

Brazil has so far reduced by 27 percent the deforestation of the Amazon region and can no longer be considered the environmental villain. Nearly 1 million hectares were cleared last year. This is a large area, but is the smallest annual total since the region began to be deforested. This reduction was achieved thanks to the elimination of the government subsidy to agricultural and livestock projects in the region, and to the strict control being exercised by IBAMA [Brazilian Institute for Environmental Affairs and Renewable Natural Resources] and the Environment Secretariat.

In the opinion of Jose Goldemberg, national science and technology secretary, the success of this government effort has removed the accusation from Brazil. Ecologists of the world had labeled Brazil as the greatest destroyer of the tropical forests. Secretary Goldemberg now believes that the Amazon deforestation will be halted soon, within five or six years. It should be noted that of the 5 million square kilometers of Amazon forest, 415,000 square kilometers of forest have already been destroyed.

Japan Pledges Help to Brazil for Amazon Mercury Pollution

OW0803140691 Tokyo KYODO in English 1232 GMT 8 Mar 91

[Text] Rio de Janeiro, Brazil, March 8 KYODO—Japan will help Brazil tackle a serious problem of mercury pollution in the Amazon basin caused by gold mining activities in the region, Japanese officials said Friday.

The two governments reached an accord on the matter in late February, the officials said.

The agreement, between the National Research Institute for Pollution and Resources under the Ministry of International Trade and Industry (MITI) and the Brazilian Government's Mining Industry Bureau, calls for joint development of a low-cost, mercury-free gold refining technology.

Some staffers of MITI's pollution research body will visit the Amazon region as early as April to carry out a fact-finding survey on mercury-contaminated areas, the officials said.

Mercury is used to separate gold from ores collected from Amazon riverbeds and is discharged into the water and air in the course of the refining process.

Some 1.6 million gold miners are working at mines along the Amazon.

An estimated 1,200 tons of mercury-contaminated water and steam have been released into the vast river basin over the past 10 years, the officials said.

The results of one survey warned that nearly two million local residents will suffer health problems from mercury pollution in the coming 10 years, they said.

Over four times more mercury has been detected in the hair of residents in the southern Amazon region than in that of Rio de Janeiro residents, according to another survey conducted by a local university study team, they said.

The tightening of restrictions on mercury sales two years ago has simply led to the circulation of the dangerous heavy metal in the black market, the Japanese officials said.

Expectations are growing among Brazilians that Japan will provide them with technology that will help them avoid the misery of mercury poisoning such as afflicted people in Minamata, southern Japan in the sixties, they said.

DOMINICAN REPUBLIC

Contaminating Industries Initiate Waste Treatment

91WN0271A Santo Domingo EL SIGLO in Spanish 21 Jan 91 p 5

[Article by Marino Zapete C.]

[Text] Jarabacoa. Eighty percent of the companies that dump pollutants in the nation's major rivers are building waste treatment plants, the forestry service director said here.

Colonel Pedro de Jesus Candelier Tejada, who presided at a forestry school graduation ceremony here, said this information should be welcome news to the people of the Dominican Republic. It means that the nation has successfully dealt with a major problem that did not seem to have a solution.

"The majority of the pollution sources which have been contaminatng the nation's rivers, principally the Ozama and the Yaque del Norte Rivers, have been polluting these waters for so many years that the poeople were losing hope that these problems would ever be corrected," said the military officer.

Candelier Tejada said that approximately 20 percent of the companies that pollute the rivers have not taken steps to build waste treatment plants. He called this an act of contempt toward the people and the nation.

"I congratulate and recognize the efforts of those who, after many years of damaging our rivers, have now shown signs of sensitivity and who have heeded the call of the forestry service. But at the same time, I want to warn those who have not complied that we have a surprise in store for them," said the officer.

After attending the graduation of 15 forestry specialists in this town, Candelier visited the Veganas meat-packing plant owned by businessman and reformist leader, Pedro Rivera. He warned that he would close the plant down if no progress is made on building a treatment plant to protect the Camu River from pollutants.

The colonel met with Juan Pimentel, the manager of Veganas Industries. He told Pimentel: "Work on the plant is behind schedule; if no progress is made in the next week, I am going to shut it down."

Reporters from this newspaper observed that wastes from the Induveca [Veganas Industries] slaughterhouse go directly into the Camu River causing the water to change color at the point where these wastes are dumped.

The forestry service director said that the fact that Mr. Rivera is a well known leader of the party in office does not place him outside the reach of the law.

"I do not ask anyone what party he belongs to; we deal only with the facts. I am a member of the military, and if Mr. Rivera does not comply with the law, I do not care whether he has influence or not. I am only performing my duty," he said.

He added: "Every citizen must obey the law, especially in this case, for it involves persons who have been harming the great majority of the people for many years. They must be made to understand that the vast majority have the right to live in a more healthy environment."

When asked about the criticism of his work by some groups, Colonel Candelier said that his conscience is clear, for he has not taken action against anyone who has not broken the law.

The colonel complained that it is very hard for any official in the Dominican Republic to comply with the law, because at some levels, moral values have been eroded.

"People attack me because I oppose things that are wrong, and in this country good has become bad, and people relentlessly attack a person who tries to enforce the law, as values have been turned around," he said.

He added: "I do have problems, for I try to apply the law properly, and the corrupt man is the one who lives well and is accepted by society. Very few people are willing to oppose what is wrong, so there is a lot of criticism. But I am not afraid of criticism so long as I know that I am doing what is right."

Mining Operation 'Poisons' Air, Water, Soil

91WN0284A Santo Domingo EL NACIONAL in Spanish 14 Feb 91 p 6

[Article by Antonio Caceres]

[Text] A technical and scientific study carried out by agents of the government and of the UASD [Autonomous University of Santo Domingo] concluded that the Falconbridge Mine is poisoning the air, water, and soil and consequently the human, animal, and plant population of Bonao and Cibao Central. The agents found traces of heavy metals in blood and excrement from residents in the Falconbridge area of operations.

At the same time they concluded that the Bonao area and all communities in Cibao Central had been affected by rains of solid particles which fell on the roofs, in the rivers and on agricultural areas. They were also present in the environment, flora, and fauna of the region.

They stated that the Falconbridge Mine has dramatically contaminated the Bonao area, villages and fields in the Provinces of La Vega, Sanchez Ramirez, Salcedo, Moca, and Duarte (San Francisco de Macoris).

The results of the technical and scientific study were made public on 14 February by the Reverend Juan de Jesus Vargas, Alfondo Fermin Balcacer, spokesperson for the Committee for a Healthy Environment in Bonao and Cibao Central, and Dr. Rogerio Rosario.

The researchers indicated that the Falconbridge Mine environmental impact study was conducted jointly by a high level, technical committee appointed by President Joaquin Balaguer and another committee appointed by the Committee on Environmental Studies of the UASD Faculty of Sciences.

The lengthy research report was prepared by UASD technicians and turned over to Dr. Julio Ravelo Astacio, the university rector, through Dr. Placido Cabrera, dean of the Faculty of Sciences.

The study indicates that Falconbridge Mine operations are almost entirely responsible for contributing to environmental deterioration in the Province of Monsenor Nouel (Bonao) and adjacent areas because the company does not restore proper plant cover after the mining is completed.

The report states that, although the mining company claimed that "reforestation programs are continuous, it has only attempted to restore 17 percent of the mined area and with relatively little success."

The investigators concluded that "the effect of thermal irradiation of the incandescent slag is affecting the level of oxygen in rivers and streams and, consequently, is limiting the development of life forms."

They stated that, due to contamination in the Bonao area, "the frequency of illnesses related to the effects of heavy metals on respiratory passages, blood, skin, genitals, and other organs is higher than the national average."

According to the study, researchers conducting the analysis concluded that, "the Hatillo Reservoir (in Cotui Province) is the final depository for waste products carried down by area aquifers, thereby aggravating environmental deterioration and turning the reservoir into a mechanism for spreading the contamination."

At the same time the contamination resulting from Falconbridge mining operations is destroying agriculture, fishing, and cattle raising. The water, air, and food produced there are saturated with toxic residues.

Three Bahoruco Rivers Dry Up
91WN0284B Santo Domingo LISTIN DIARIO in Spanish 15 Feb 91 p 3

[Article by Genao Contreras]

[Text] Barahona—The president of the Ecological Group of Barahona has denounced the fact that the headwaters of three rivers have disappeared over the past few months in the Bahoruco area, which he attributed to deforestation extraction of sand and gravel.

Agronomist Jose Cavallo, Jr., said that the headwaters of the Nizaito and Bahoruco Rivers have disappeared because, with the absence of controls in the area, unscrupulous persons have cut down trees.

Cavallo announced that the Bahoruco River, the largest in this province, has been slowly drying up after people in the area destroyed the trees in the area's hydrographic basins.

Cavallo said that the people engaged in extracting sand and gravel for Larimar [expansion unknown] are leaving large holes on the banks of both rivers which is creating serious ecological damage.

HONDURAS

COHDEFOR Says LUPE Aid Project Mismanaged
91WN0280A Tegucigalpa LA TRIBUNA in Spanish 31 Jan 91 p 9

[Text] Year after year, millions of square meters of land in the Honduran mountains are being eroded and deposited in the beds of the rivers watering the national territory.

As a result of these high depredation rates, during November (when serious flooding occurred), the country suffered economic losses exceeding 240 million lempiras. This was due to the freshets caused by rivers in various zones.

According to the Honduran Corporation for Forest Development (COHDEFOR), last year 2,326,000 hectares of land were deforested in the national territory.

In view of this problem, there is an urgent need to accelerate the rehabilitation and conservation of the upper parts of Honduran river basins.

Oddly enough, for over a year a special project has been under way, aimed at rehabilitating and conserving the mountains and slopes in the central strip of Honduran territory.

Nevertheless, and although this is a project with $50 million available, up till now it has been bogged down and submerged in the turbulent waters of domestic political maneuvers and the inoperativeness of the state bureaucracy.

This is project LUPE (so-called because its original name in English is: "Land Use and Productivity Enhancement"), which in good Spanish means "Mejoramiento del Uso y Productividad de la Tierra."

What Is LUPE and What Was It Meant To Be?

The United States Government's Agency for International Development (AID) signed an agreement with Honduras on 9 February 1990 whereby the former donated $36 million to execute this project.

Honduras, for its part, pledged to invest an additional $14 million, bringing the total to $50 million. At the interbank system's official exchange rate, that sum represents 265 million lempiras.

Of all those millions, over $28 million (128.4 million lempiras) have been allocated for the payment of the project personnel's salaries and traveling expenses. This includes nearly $3 million (15.9 million lempiras) to pay foreign consultants, representing approximately 50 percent of the budget.

Another interesting expense goes toward the rental of premises and offices, to exceed $1.5 million (7.9 million lempiras). The main premises in Tegucigalpa cost 10,000 lempiras monthly, and there are 22 rented premises in all.

Generally speaking, this project intends to invest nearly 90 percent of its budget in personnel salaries and other administrative related spending.

According to the Ministry of Natural Resources, the Honduran institution responsible for this project, LUPE is supposed to have been used to rehabilitate and conserve the basins of six of the country's 10 largest rivers: the Negro, Sulaco, Guayape, Choluteca, Aguan, and Nacaome.

The total geographical area intended for the project to cover exceeds 17,800 square km. It includes Honduras' most mountainous departments: El Paraiso, Choluteca, Valle, Yoro, Olancho, Comayagua, and Francisco Morazon.

According to the plans, the project must give priority to the mountainous zones and river basins with slopes exceeding a 15 percent grade, which are currently suffering serious, acute deforestation and soil deterioration or erosion. These are the most eroded soils in the country, dumping thousands of tons of dirt and other types of materials into the rivers annually.

LUPE, with its activities, is intended to directly benefit 50,000 Honduran farmers living in those mountainous areas. However, the thousands of Hondurans living, working or owning agricultural-livestock farms and businesses on the flat land adjoining all those rivers are also meant to benefit indirectly.

If a mathematical cost/direct benefit ratio is made of this project, it shows that every Honduran farmer benefited will cost LUPE an average of $1,000 (5,300 lempiras at the official exchange rate).

To achieve better land use and productivity in the Honduran central mountain zone, LUPE proposes to plant 6 million multiple use trees and half a million fruit trees. This is to be accomplished with over 500 tree nurseries in an equal number of villages.

Moreover, it intends to create 5,000 family gardens and to construct projects for conservation and prevention of soil erosion on 50,000 hectares of land on mountain slopes.

The project organizers ae planning to purchase 104 cars and 102 motorcycles for the employees' use. Their cost and maintenance have been estimated at over $6 million (31.8 million lempiras).

One goal that is a major challenge in mountain reforestation is to restore a total of 10,000 hectares of land currently being over-exploited for livestock pasturage and convert it to forest production.

The agreement creating LUPE (AID-522-0292) mentions additional activities, especially in the area of training and qualifications, which represent an approximate cost of $7 million (37.1 million lempiras).

LUPE Is Being Submerged and Drowned

As a cruel omen of what it could become in its eight years of operations, presently, project LUPE has not yet started as what it is supposed to be: a real solution to the soil erosion problem, and hence a medium-term alternative for flood control. This is to be achieved through rehabilitation and conservation of the mountain basins of the country's rivers, or at least six of them.

Because of traditional political maneuvering, as well as the by now chronic inoperativeness of the state bureaucracy, during most of 1990 this project has been submerged and drowned in problems involving changes in personnel and limited field work.

The paralysis suffered by the project is also due to the replacement of its executive director, Jose Montenegro Barahona, appointed through mutual agreement by the previous government and the AID.

Although he was contracted in September 1989 for a legal period of two years, he was removed from the position in August 1990. His replacement was Rigoberto Romero Meza, a high-ranking board member of the Francisco Morazon Association of Callejas Supporter Professionals.

It was not impossible to determine whether or not Montenegro was paid his salary for the remaining 13 months. According to his legal contract, he was entitled to receive it until September 1991.

Furthermore, as is now common in the present government, only persons whose names and identification numbers appeared on the lists of the National Party Central Commitee Computer Center were hired. Most of them were chosen without regard for their ability and experience in such a highly specialized technical field as the work being done or scheduled for this project is supposed to be.

LUPE Could Still Be Salvaged

Despite the apparent failure of project LUPE in its nearly two years of existence, an effort could still be made to speed up its activities and give priority to the field work. The latter must be geared to its essential goals of improving the use and productivity of sloping land, so as to prevent the erosion of mountains in the basins of the six aforementioned rivers.

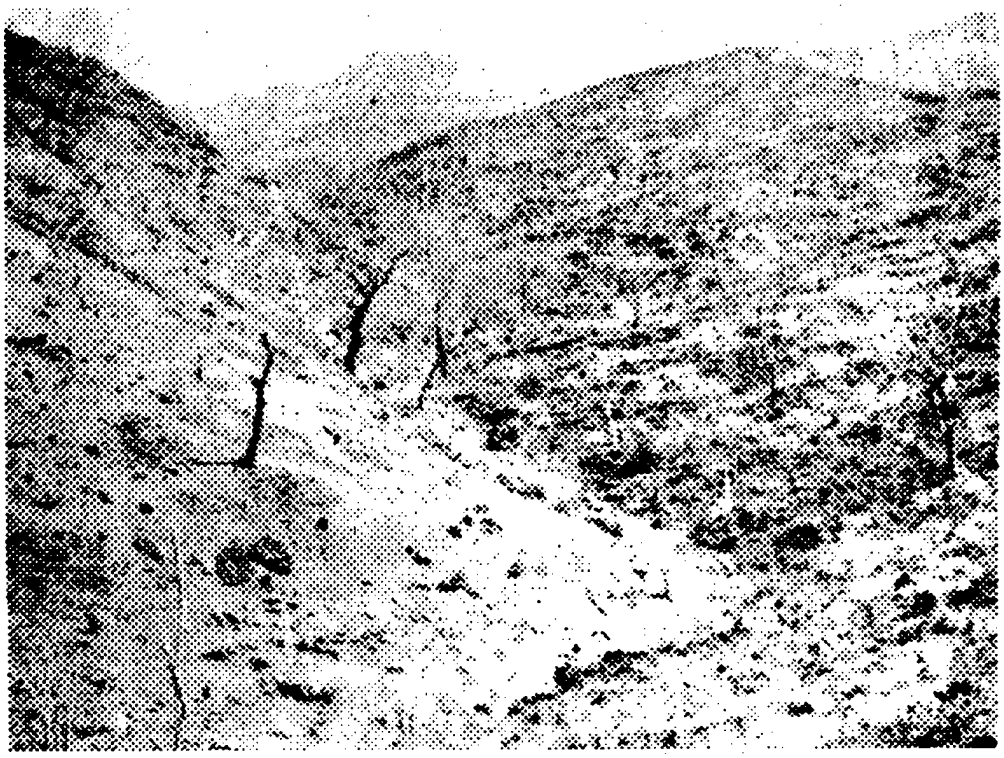
Otherwise, this project costing millions will be left submerged and drowned, just as the flat basins of those rivers will continue to be.

President Rafael Leonardo Callejas' Nationalist Government and the AID board members have the floor now.

Rivers Contaminated by Industrial Wastes

91WN0288A San Pedro Sula TIEMPO in Spanish 18 Feb 91 pp 30-31

[Text] San Pedro Sula—Industrial wastes being dumped into the Bermejo, Sauce or Chotepe, Rio Blanco, and Rio



Key:

1. Rehabilitation of the slopes in the basins of the country's six rivers with high volume of flow is one of Project LUPE's goals.

Piedras Rivers, which empty into the Chamelecon River and Ticamaya Lagoon, are a serious threat to the residents of that area, in addition to contaminating the water.

Dr. Alfredo Di Palma, of the Municipal Waters Division (DIMA), points out that in addition to industrial wastes should be added domestic wastes which cause a large number of deaths, principally during the summer.

Furthermore, according to Di Palma, these wastes endanger the lives of fish and plants due to a lack of oxygen, which is absorbed by the toxic substances dumped into the rivers. This fact has been brought out by research carried on by the DIMA laboratories.

Sources of Contamination

Large quantities of contaminants are discharged by the San Pedro and Kativo textile firms, the Cerveceria Hondurena [Honduran Brewery], and the Productos Lacteos Company [Milk Products Company].

San Pedro Sula and the Central American Tanning Company (ECCA) are working jointly with the DIMA to halt this dumping, which is harmful to health and to the environment.

Di Palma explained that these wastes contain microorganisms which, when dumped in large quantities, reduce organic material and absorb most of the oxygen in the water. They do not allow other living things which need oxygen (such as fish and plants) to exist.

Dr. Oscar Molina, chief of Sanitary Region No 3, confirmed that substances such as chrome, lead, lactic acid, and other solid wastes which these industrial firms dump into the rivers directly affect vegetation, since the products harvested in that area (for the most part bananas, tomatoes, and radishes) are highly contaminated and endanger the lives of the people who consume them.

People Use Contaminated Water

Doctor Molina warned that people who live on the banks of those rivers use the contaminated water to wash their clothes, to irrigate their vegetables, and even to bathe, "running the risk of suffering from diarrhea and even poisoning if they drink the contaminated water."

Molina said that people who merely contact the contaminated water are prone to suffer from dermatitis or skin infections. What is more serious is that such contact reduces the defenses of the body.

He recommended that the factories which are now dumping such wastes should, instead, hold them in concrete containers and empty them out where there is no concentration of people in order to avoid such risks, the contamination of the subsoil, and finally of plant matter.

Children Are Innocent Victims

On the banks of the Bermejo River, at any time of day and unaware of the danger, many children bathe and fish for sardines. They are happy when they catch sardines with their nets and later on carry the fish home to eat.

However, contact with contaminated water is not limited to fishing. The people living along the banks of the Piedras River who cross it near the San Pedro Textiles factory say that although the water looks dirty, they use it to bathe and then to wash all of their clothing. However, they admit that they do not drink it because it has a great deal of garbage in it.

Children and their mothers also draw water from the river for domestic use. Nevertheless, to satisfy their thirst, they have to look for clean water in nearby places and factories, having to walk barefoot under the hot sun over stony roads and in clouds of dust.

The children suffer the most serious consequences from the contamination because in their childlike way of looking at things they like to lie submerged in the rivers, without understanding the harm which surrounds them.

According to research undertaken in the DIMA laboratories, the numerous toxic substances contained in the water of these rivers can cause anything from an ear infection to cancer. This was stated by Dr. Rosa Lilia de Rivera, director of the laboratories.

Doctor Di Palma pointed out that another problem which the people face is deforestation during summer, principally in the Chamelecon River and Ticamaya Lagoon areas (the principal sources of water for San Pedro Sula). Deforestation substantially reduces the flow of the water, and that is when chemical wastes affect aquatic life and contaminate the whole environment.

Solutions Being Sought

DIMA is very interested in having the companies involved treat their wastes in such a way that they will not continue to cause contamination. Doctor De Rivera said that among DIMA's plans is the future construction of a San Pedro Sula Water Treatment Plant.

She pointed out that this project is of special interest because many sewer pipes are affected by the high temperatures of the wastes produced by companies like Laboratorios Finlay. In addition to damaging the general structure of the pipes, the wastes cause greater operational costs for the company.

She also said that specific studies have been made of the problem which the water from these rivers causes. Discussions are being held with the owners of these factories to convince them to begin planning on allocating some of their income to treating the wastes which they are discharging into different bodies of water in the city.

MEXICO

Objections to Hydroelectric Project Noted

Project Impact Discussed

91CA0073X Mexico City LA JORNADA in Spanish 18 Feb 91 pp 1, 20

[Ivan Restrepo Commentary]

[Text] Last May the then social-development manager of the Federal Electricity Commission (CFE) sought to bring together a group of specialists to gauge the environmental, social, and economic impact of building the San Juan Tetelcingo Reservoir on the upper Balsas River in Guerrero. The official expressed the commission's desire to undertake the project with social justice and minimal damage to the area's natural resources. Four investigators with proven experience in environmental and rural-development matters visited the area to ascertain the details of the project.

They first visited the El Caracol hydroelectric plant, which was completed in 1986 and can generate 600 megawatts. Some 5,500 people who lived in 16 pueblos and owned 4,000 hectares of agricultural land had to be relocated to build it. The commission gathered them together in six towns (858 houses in all), with seven primary schools, two secondary schools, health-care centers, civic plazas, and people's houses. We should note that every house had a parking place even though there was no road into the towns and the campesinos were poor. But the impressive hydroelectric plant has one tiny problem: it is becoming clogged owing to the soil erosion in the Upper Balsas basin. If something urgent is not done, the experts say, El Caracol will have just 20 more years of useful life. And that "something" is another hydroelectric power plant.

The group of CFE experts and technicians then visited the proposed building site: San Juan Tetelcingo and the nearby area. This project is larger than the previous one. This fourth hydroelectric plant on the Balsas (the others are El Caracol, Infiernillo, and La Villita) would flood 14,000 communal hectares comprising 16 pueblos that are home, according to the CFE, to 16,000 Nahua Indians, who are well known in Mexico and throughout the world for their beautiful paintings on amate paper. These communities would be covered by the reservoir, as would 7 kilometers of the Mexico City-Acapulco federal highway. Estimates are that a bit more than 10 percent of the hectares that will be flooded are essential to the community because they constitute its only farmland. Beyond the fertile river plain there are only arid, treeless hills.

The new project would generate 609 megawatts, a small fraction of the thousands that the commission estimates as the country's future needs, and would, during its

84-year useful life, retain the 25 million cubic meters of sediment that the basin delivers each year to the chosen construction site. There are those who wonder whether it will not meet the same fate as El Caracol. Thus, the possibility of building a fifth plant, P.H. Hostula, a few kilometers upriver, is already being looked into.

In the case of San Juan Tetelcingo, however, we must consider aspects other than generating energy and preventing sedimentation in an existing plant. It so happens that the highway to Acapulco will also affect the local population by diverting traffic from its current route through Xalitla and Tetelcingo. The highway would have a bridge crossing the reservoir. This spot would thus become strategic for the region's economic future, but its age-old inhabitants would be sent to live far away from there, on the banks of the reservoir.

The CFE is negotiating a $500 million foreign loan to build the new hydroelectric plant. If it gets it, it will have to comply with several environmental, financial, and social requirements set by international development banks for certain projects. For example, whenever possible, it must avoid or keep to a minimum forced relocations by looking into alternative solutions for development aims, and it must encourage the people who are affected to play a real role in planning the relocations. Regrettably, these two basic rules have been ignored so far in the case that concerns us, as have several less expensive alternatives that are less damaging to society and the environment.

In this regard, the government could look into the feasibility of building small dams and other irrigation projects, which would bring ample benefits to the locals and to Guerrero farming. Much of the resulting sediment could be used as fertilizer for the fields, and an effective reforestation policy would halt much of the current erosion. Small hydroelectric power plants could also generate energy for regional use. None of these options, which would cost much less than the large-scale project, have been evaluated.

The technocratic manner in which the project is being handled is also worrisome. In spite of a very high profile after several years in the region, the CFE has never told the locals or their authorities about the plans that are being drafted in the Federal District to remove them from their ancestral lands. They have been unwilling or unable to tell 30,000 Indians that their sacred lands, their culture, and their homes are less important than generating 609 megawatts.

The group of specialists who visited the proposed site of the new hydroelectric plant told the commission that they would not take part in any study unless the inhabitants of the region were informed immediately and in full about it and unless they were actively involved in everything having to do with a project that will have an enormous effect on them. After several friendly meetings with the social-development manager of the CFE, it was impossible to keep this minimal promise, and everything remained the same. Overnight, this official was named director of Inmecafe [Mexican Coffee Institute].

The residents of the region are now increasingly claiming their right to find out about the project and to be involved in making decisions that will radically alter their lives and their surroundings. The commission is not facing up to things. Let us hope that San Juan Tetelcingo will not in a few years represent another injustice committed against man and nature by undertaking major projects. The examples abound: the Miguel Aleman reservoir in Veracruz, the La Angostura hydroelectric plant in Chiapas, and the Cerro de Oro reservoir in Oaxaca and Veracruz, to cite the saddest ones.

Open Letter to President

91CA0073B Mexico City LA JORNADA in Spanish 18 Feb 91 p 9

[Text of Open Letter to President Carlos Salinas de Gortari: "Nahua Pueblos and the Group of 100: No to the Construction of the San Juan Tetelcingo Reservoir"]

[Text] Mr. President:

The Nahua communities of the Upper Balsas, Guerrero, represented by their legitimate authorities, the Council of Upper Balsas Nahua Pueblos (CPNAB), in addition to the Support Committee for the council, and the Group of 100, are extremely concerned about the threat that construction of the "San Juan Tetelcingo" reservoir by the Federal Electricity Commission [CFE] represents. This reservoir would cause serious and irreparable environmental, cultural, and social disruption comparable to what is being suffered today by the inhabitants of Balsas Nuevo, a community made up of the abandoned pueblos of Campo Arroz, Tecomapa, Balsas Norte and Balsas Sur, La Zonteta, Ahuatlan, and others. These pueblos were cleared out in the wake of the construction of "El Caracol." As in all such relocation experiences in Mexico, the CFE promised to improve their living conditions but did not deliver. It gave the "beneficiaries" inadequate housing and contaminated water; it "improved" their agricultural production by damaging their lands with sodium nitrates without providing them sufficient drinking water. Mud killed off fauna and even some people. Many elderly individuals died of homesickness, and others suffered mental disturbances when they were uprooted from their places of origin. As if this were not enough, the CFE is now perpetrating another crime against the Huichola communities by building the Aguamilpa dam. The San Juan Tetelcingo reservoir will have similarly devastating effects by directly impacting more than 20 Nahua pueblos and their lands; entire fields will be flooded, as well as archaeological zones like Teopantecuanitlan, which has not yet been completely explored, zones that are part of Mexico's and mankind's patrimony. The reservoir will cause the disintegration of the traditional methods of handicrafts production and commerce, which are an inalienable part of the pueblos.

These communities, with their handicrafts, have survived the blows dealt by the conquest, the colonial

period, and modern Mexico. The amate paper paintings, which are famous both here and abroad, are done in this region; pre-Hispanic style pottery, masks, and all sorts of wood carvings, as well as handmade rocking chairs, are produced here. Sending these communities off into regions that are alien to their culture will deprive them of the inputs they need to produce their handicrafts, thus taking away their livelihood.

The CFE and the state government argue, on the one hand, that the reservoir is only under study, but on the other hand they are announcing that construction will begin soon. We are convinced that the project is moving forward surreptitiously so that it can be made public when it is already an accomplished fact.

For these reasons, the pueblos and members of the undersigned groups ask you:

(1) To suspend immediately all work having to do with the construction of the "San Juan Tetelcingo" reservoir and to cancel this project, which is destructive of the environment and an ethnic group. The peoples of the region possess the inalienable right to have their social and cultural integrity respected as citizens with equal rights vis-a-vis the authorities who decide on public works.

(2) To inform the communities and national public opinion honestly about the true intentions of the CFE in the region, so as to halt the wave of disinformation and intimidation by officials of the CFE and the state government.

(3) To respect the civil and cultural rights of indigenous groups, as enshrined in national laws regarding genocide and the law of responsibilities of civil servants, and with regard to international agreements that our country has signed, such as Agreement 169 of the International Labor Organization, which Mexico signed in Geneva and which provides that indigenous peoples have a right to self-determination in their territories, as well as other patrimonial rights. Construction of the reservoir would violate the rights of the communities. If this project is undertaken with money from Spain, as is rumored, it would be like resuming the genocide that began almost 500 years ago, reaffirming the colonial greed of which the Indians are victims and from which we have not yet freed ourselves. What a shocking way to commemorate the 500th anniversary, by reopening the historic wounds that the Spanish conquest left among the cultures of the Americas.

Xalitla, Maexela, Ahuelican, Ahuehuepan, Ameyaltepec, Tlamamacan, San Juan Tetelcingo, San Marcos Oacatzingo, San Agustin Oapan, Analco, San Miguel Tecuiciapan, Tula del Rio, Oztotipan, San Francisco Ozomatlan, Ahuetlixpa, Totoltzintla, Tlacozotitlan, Tlayahualco, Mezquitepec, Tlapehualapa, Tinajas, and other pueblos along the ranks of the Balsas River.

On behalf of the CPNAB:

Sixto Cabanas, Crispin Vargas, Agustin Tolentino, Maurillo Santos, Tito Rutilo.

On behalf of the CPNAB Support Committee:

Jose Antonio Flores, Alfredo Ramirez, Marcelino Diaz, Juan P. Ramirez, Yolanda Lastra, Alfredo Lopez Austin, Leopoldo Valinas, Andres Medina, Juan J. Rendon, Marta Garcia, Alejandra Leal, Jorge Claro, Carlos de Jesus, Pedro de Jesus, Eustaquio Celestino, Victor Franco, Sergio G. Sanchez, Lourdes Alvaerz, Manuel Rios, Hidelberto Martinez, Constantino Medina, Ulises Martinez, Silverio D. Sanchez, Cecilia Rossell, Clara Elena Suarez, Jesus Ruvalcaba, Felix Salgado, Minerva Ramirez, Apolinar Moreno, Sergio Moreno, Barbara Cifuentes, Carmen Herrera, Guadalupe Martinez Don Juan, Luz Maria Mohar, Ernesto Diaz C., Maria Luisa Garfias, Sergio Fajardo, Alfonso Cortes, Luis del Arco, Hipolito A. Hernandez, Salvador Rodriguez, Faustino Palacios, Inocencio Ines M., Sabino Estrada, Juventino Cota, Hopolito Morales, Joaquin Galarza.

Signing for the Group of 100:

Octavio Paz, Rufino Tamayo, Antonio Alatorre, Manuel Alvarez Bravo, Colette Alvarez Urbajtel, Nedda C. de Anhalt, Homero Aridjis, Alejandro Aura, Rene Aviles Fabila, Juan Banuelos, Huberto Batiz, Hilda Bautista, Feliciano Bejar, Arnold Belkin, Alberto Blanco, Carmen Boullosa, Federico Campbell, Emilio Carballido, Fernando Cesarman, Arnoldo Coen, Raul Cossio, Elsa Cross, Rogelio Cuellar, Jose Luis Cuevas, Shirley Chernitsky, Ali Chumacero, Joaquin Diez Canedo, Felipe Ehrenberg, Salvador Elizondo, Helen Escobedo, Manuel Felguerez, Betty Ferber, Guillermo Fernandez, Margit Frenk, Carlos Fuentes, Hector Garcia, Juan Garcia Ponce, Ricardo Garibay, Gunter Gerzso, Margo Glantz, Arturo Gonzalez Casio, Ulalume Gonzalez de Leon, Roger von Gunten, Juan Jose Gurrola, Marta Hellion, Jan Hendrix, Raul Herrera, David Huerta, Barbara Jacobs, Enrique Krauze, Ethel Krauze, Salomon Laiter, Mario Lavista, Paulina Lavista, Vicente Lenero, Arturo Lomeli, Elva Macias, Gabriel Macotela, Jorge Alberto Manrique, Ludwig Margules, Eduardo Matos Moctezuma, Arturo Mecalco, Ofelia Medina, Victor Manuel Mendiola, Maria Luisa Mendoza, Sergio Mondragon, Miriam Moscona, Carlos Monsivais, Augusto Monterroso, Alvaro Mutis, Francisco Nunez, Jose Emilio Pacheco, Tomas Parra, Ana Pellicer, Pilar Pellicer, Sergio Pitol, Elena Poniatowski, Ivan Restrepo, Federico Reyes Heroles, Mariano Rivera Velazquez, Vicente Rojo, Alejandro Rossi, Alberto Ruy Sanchez, Marti Soler, Olga Tamayo, Isabel Turrent, Cordelia Urueta, Edmundo Valades, Mario del Valle, Luis Roberto Vera, Margarita Villasenor, Vlady, Veronica Volkow, Ramon Xirau, Eraclio Zepeda.

In charge of publication: Jose A. Flores Farfan and Juan Petronilo Ramirez

NICARAGUA

Beach Conservation Plan To Begin

91P40178A

[Editorial Report] Managua LA PRENSA in Spanish of 20 February 1991 on page 6 reports that the Nicaraguan Biological and Ecological Association's "1991 Beach Project" is scheduled to begin in March. Program coordinator Santiago Nunez stated that 450 workers will monitor 20 beach resorts on the Pacific Coast and will educate beach goers about the importance of keeping the beaches clean. According to Nunez, the project is funded by Inturismo [Nicaraguan Institute of Tourism and the Environment], Irena [Institute of Natural Resources], Inpesca [Nicaraguan Institute of Fisheries], Cepad [Evangelical Committee for Development Aid], the Red Cross, Shell of Nicaragua, and private companies. Nunez explained that the program budget of 1,500 gold cordobas per month will cover the costs for gasoline, car stickers, T-shirts, and worker identification cards.

IRENA Prohibits Mangrove Cutting

91WN0303A Managua BARRICADA in Spanish 14 Feb 91 p 8

[Communique issued by IRENA Director Jaime Incer]

[Text] By virtue of the powers vested in it, the Nicaraguan Institute of Natural and Environmental Resources (IRENA) hereby notifies citizens in general and users of marine and mangrove resources in particular that:

1—Restriction: The cutting of mangroves throughout the national territory is hereby totally restricted.

2—Registration: Any activity or industry which utilizes estuary resources and particularly mangroves, such as the salt and shrimp industries and tanneries, must be enrolled in a special registry kept for this purpose by the General Administration of Forestry Regulation.

3—Permits: Only the Nicaraguan Institute of Natural and Environmental Resources has the authority to issue permits to handle natural resources and, in particular, mangroves.

Individuals or corporations presenting permits issued by any authority other than IRENA or papers bearing seals and signatures other than those authorized by Central IRENA must meet the requirements of the latter institution, acting on their own responsibility and risking seizure of the product for contempt. The issuing authority acting in violation of its powers will be subject to prosecution in accordance with the law.

4—Circulation: The circulation of mangrove products and by-products requires a transport guide issued by the local IRENA authority and submitted by that institution. Otherwise, the proper penalties will be applied.

5—Sanctions: Failure to comply with these provisions empowers IRENA to impose the proper legal and regulatory sanctions on the violator, without prejudice to the filing of criminal reports with authorities.

6—Police authorities will lend their complete support to enforcement of these provisions.

Signed in the city of Managua on 25 January 1991.

Jaime Incer General Director of IRENA

REGIONAL AFFAIRS

Japan To Send Environmental Mission to Gulf

OW0503094591 Tokyo KYODO in English 0858 GMT 5 Mar 91

[Text] Tokyo, March 5 KYODO—Japan will send a 14-member mission to the Persian Gulf later this week to assess the environmental damage caused by the Gulf war in order to help decide future assistance, the government announced Tuesday.

The mission, comprising officials and experts on oil and air pollution, water sanitation, wildlife, and navigation, will visit Saudi Arabia, Qatar, and the United Arab Emirates, all of which are among nations affected by oil spills in the Gulf and burning oil wells in Kuwait.

Members of the mission have been gathered from the environment, maritime safety, fisheries, and meteorological agencies, and the Ministry of International Trade and Industry.

An official from the Japan International Cooperation Agency (JICA) is also in the group.

During the trip, expected to last for around 10 days, they will conduct on-the-spot surveys and hold talks with government officials.

Foreign Ministry officials said there is a possibility of Japan also sending missions to Kuwait.

The Japanese embassies in both Kuwait and Iraq are still closed, with officials standing by in nearby Gulf nations ready to return.

Officials said the government will take into account the mission's findings in studying concrete measures it can take to provide technical assistance by dispatching experts to cope with the oil spill and environmental contamination in the Gulf region.

A ministry official said it would be possible to consider assistance for other nations like Iran, where black rain has fallen, based on actual needs identified in such nations.

Meanwhile, the director of a Tokyo-based private research institute said Tuesday that burning oil wells in the Persian Gulf region are releasing 15,000 tons of soot a day into the atmosphere, or more than 50 times the amount released daily over Japan.

Teiichi Aoyama, director of the Environmental Research Institute Inc., said he based the calculations on newspaper reports that oil fields burning in Kuwait and Iraq as a result of the Gulf war are consuming about four million barrels of oil a day.

A simulated case study shows that smoke concentrations near the ground are particularly dense and could cause bronchial and lung problems, he said.

Aoyama said soot in the atmosphere is reflecting the sun's rays and causing a drop of about five degrees celsius in the temperature over parts of Kuwait, northeast Saudi Arabia, and western Iran.

He calculates that if the fires continue for an extended period, temperatures in the region could drop by as much as 15 degrees.

"If the smoke continues to spew out, the soot will extend over a greater area, making it inevitable there will be a situation resembling a nuclear winter on a global scale," Aoyama said.

"It's vital the fires be extinguished as soon as possible."

Japanese Agency Warns Gulf Oil Well Fires Pose Health Hazards

OW0803135791 Tokyo KYODO in English 1332 GMT 8 Mar 91

[Text] Tokyo, March 8 KYODO—Japan's environment agency warned Friday that air pollution caused by Kuwait oil well fires could pose serious health hazards to people living in and around the oil rich emirate.

Fires are still burning at 620 wells in seven areas of Kuwait after reportedly being lit by Iraqi troops during the Persian Gulf war, and are blackening the skies and filling the air with the stench of burning petroleum.

The agency estimated that 35,000 tons of sulfur dioxide are being emitted into the atmosphere every day from the burning oil wells, equivalent to the amount emitted over 20 days in Japan.

Citing data assembled by the King Fahd Mineral Sources University in Saudi Arabia, the agency said that the density of sulfur dioxide in the air over southern Kuwait exceeded Japanese regulatory standards by 40 times.

In Saudi Arabia, the density of sulfur dioxide also exceeded that nation's standards in 14 of the 25 cities along the Gulf.

According to the agency, if the toxic substance continues to be discharged into the air over a long period, it will seriously affect people's respiratory systems.

Soviet Organization Prepared To Remove Gulf 'Ecological Aftermath'

LD1503100891 Moscow TASS in English 0852 GMT 15 Mar 91

[By TASS correspondent Aleksandr Borisov]

[Text] Moscow March 15 TASS—The Soviet foreign economic ecological association Ecolas is ready to offer its services in removing the Gulf war ecological aftermath, a TASS correspondent has been told by Ecolas General Director Professor Viktor Akovetskiy.

In the professor's opinion, the Ecolas Association, instituted by 35 leading Soviet enterprises and organisations, including defence and cosmic ones, has at its disposal all the necessary technical facilities and a wealth of experience to solve such a large-scale problem.

If the relevant sides are interested in the proposal, Akovetskiy said, Ecolas could already start in the near future monitoring of the ecological condition in the region. Ecolas will be able to use the most up-to-date methods and facilities for observations and data processing, including remote sounding complexes, installed aboard the Soviet orbital station Mir, the artificial earth satellites Resource-01 and the research ship Akademik Aleksey Krylov.

Ecological charts and Gulf environmental condition models will be made, to be followed by specific proposals on ways of removing the Gulf war ecological aftermath.

A number of Western firms, among them the Swiss firm Leica, have expressed readiness to carry out the work jointly with Ecolas.

Qatari Government Takes Measures Against Gulf Oil Spill

Salvage Devices Installed

91WN0289A Doha GULF TIMES in English 31 Jan 91 p 3

[Article by K. N. Sharma]

[Excerpt] All possible salvage devices are being put in place to beat back the world's largest oil slick from Qatari coastal waters and protect the country's water desalination and power plants.

Protective booms are being fortified and rocks being dumped into the sea from where the country's two water desalination-cum-power generation plants—Ras Abu Aboud and Ras Abu Fontas—take their raw water for desalination and electricity generation.

Booms and rocks are also being laid near other industrial plants and oil and gas installations to protect their sea water intake channels.

Qatar Environment Protection Committee director Abdulaziz al-Midfa expects the slick, travelling at a rate of 15 miles a day, will hit the Qatari shores within 10 days. But it may not be the same messy oil spill that originated in Kuwait, but tar balls, which would be a lot easier to manage.

In Qatar, the cabinet under the chairmanship of the Heir Apparent and Defence Minister, HH Sheikh Hamad bin Khalifa al-Thani, to review the measures taken to fight the spill, when it arrives.

A special task force is being created under the QEPC to coordinate efforts to grapple with the problem. The Minister of Municipal Affairs and Agriculture, HE Hamad bin Jassem bin Jabor al-Thani, who is also acting Minister of Electricity and Water and chairman of QEPC, is personally directing the salvage efforts.

Emergency Committee Meets

91WN0289B Doha GULF TIMES in English 2 Feb 91 p 3

[Excerpt] A high-powered emergency committee headed by QGPC's managing-director resumed meetings on Thursday to adopt necessary measures designed to ensure that production operations as well as safety of equipment and personnel are maintained.

The committee, comprising heads of the various departments of Qatar General Petroleum Corporation has set up a central operations room connected with all branches and companies to send out necessary instructions that ensure smooth performance of all production centers.

Meanwhile, the main emergency committee assigned to follow-up the oil spill has been holding meetings since last Saturday to discuss steps that ensure that the slick does not reach the inlets of water desalination installations and the water used in cooling systems and fire-fighting.

Equipment and chemical materials used to confront the slick should it reach the Qatari waters were checked.

QGPC specialists have prepared a computerized programme designed to monitor the oil spill's movement over a 30-day period starting with the date the slick formed up.

QGPC sources affirmed measures that have already been taken would protect its installations against any possible harm.

German Experts, Equipment Arrive

91WN0289C Doha GULF TIMES in English 3 Feb 91 pp 1, 16

[Article by K. N. Sharma]

[Text] A German military transport plane carrying a technical team and equipment, arrived in Doha yesterday to help Qatari authorities battle against the Gulf oil slick that is expected to hit the country's shorelines within 10 days.

Mr Abdulaziz al-Midfa, secretary-general of Qatar Environment Protection Committee (QEPC), said the equipment, part of German assistance to fight the "catastrophe," would be used to clean up the oily mess from coastal water and protect the water intake channels of desalination and power generation plants and other industries.

The German experts, Capt G. Bustorff and Dr Bernd Bluhm, of their country's special unit for oil spill control, said the equipment, weighing 30 tonnes, included skimmers (floating pumps), high-pressure cleaning system, 200 meter-boom, oil mop and various other devices. "We could have brought many more things, but there was limit to what a Boeing could take," they said.

The equipment is valued at Dm5mn ($3.5mn).

Last Tuesday Germany announced its contribution to European and International Maritime Organization (IMO) efforts to combat the Gulf oil slick.

The spill, carrying more than 11mn barrels of crude from Kuwaiti oil terminals—Al Ahmadi and Mina Al Baker—and five Iraqi tankers, threatens the total destruction of the Gulf's marine life, drinking water supply, and industries.

Stated to be 35 miles long and 10 miles wide and travelling at a speed of 15 miles a day it has reached Safaniya offshore oilfield of Saudi Arabia and was heading towards the kingdom's industrial city of Jubail—the home of the world's largest desalination plant producing 30mn gallons a day of drinking water. A battle is on to save the plant.

Capt Bustorff and Dr Bluhm said oceanographers thought the slick might turn "anti-clockwise" towards the north from natural obstacles near Bahrain, depending on wind direction. Yet, when it happens, the sub-surface oil moves in the opposite direction of the slick.

The German experts said there was no way the slick could be prevented from coming to Qatar; but its potential effects could be vastly minimized by adopting appropriate protective measures.

They said the gravity of oil on surface water in the Gulf varied between 0.5 and 0.9 percent. When it evaporated the solid fraction of crude increased to 1.5 percent. This meant that oil might go down to subsurface.

Another problem with the Gulf waters, said Capt Bustorff and Dr Bluhm, was that it lacked sufficient oxygen and contained less fresh water. "The thumb rule is that Gulf water gets completely changed only once in 200 years. This means that Gulf water once contaminated will retain its pollution for several years."

The experts said the current spill was the history's "hugest" and it had to be tackled with coordinated efforts by all regional and international agencies.

"We have known by experience that rocks and boom do deliver the goods. But they cannot provide lasting solution. Tar balls may appear after years, as happened in 1989 in Damman, and left people guessing where it came from (it re-emerged from the 1983-slick during the Iraq-Iran war).

The experts said oil-swallowing tankers could do the job pretty well. But it could take three weeks to reach here. They said they were assessing the situation and collecting information from various Gulf countries to decide how best the calamity could be averted.

Meanwhile QEPC, in collaboration with different ministries and departments, is erecting barriers and skimmers to protect desalination plants and beaches.

Discussions With Canadian, French, German Experts

91WN0289D Doha GULF TIMES in English 6 Feb 91 pp 1, 16

[Article by K. N. Sharma]

[Excerpt] A seven-member Canadian team of oil slick experts arrived in Qatar last night to aid Qatari authorities plan and execute a war against a possible oil pollution of Qatari coasts.

The team will hold discussions with secretary-general of Qatar Environment Protection Committee Abdulaziz al-Midfa and officials of other government departments, industries, and utilities today to asses the situation and steps taken to ward off impending dangers.

The slick—one of the history's biggest—is expected to hit Qatari shores within the next eight to 10 days. It threatens the Gulf's marine life, environment, drinking water supply and economic life.

Originating from Iraqi-occupied Kuwait's oil terminals it has reached the Saudi eastern waters, despite massive efforts to control it.

It has been travelling at 15 miles a day. But yesterday's higher wind velocity is reported to have increased its speed.

Qatar has mounted war-footed measures to battle with its fury, by laying protection booms and rock barriers in the coastal waters. A four-man German expert team which arrived in Doha with $3.5mn worth of protective equipment early this week is helping the authorities.

A French team of Elf Aquitaine oil company is also participating in the Qatari battle against the spill. Elf Aquitaine operates Qatar offshore to explore for oil and gas.

—The Qatar Permanent Environment Protection Committee held a meeting in Doha last evening with the German oil combating experts and technicians, to consider the action plan to be carried out in cooperation with the German team to help combat the possible slick, a committee official source said.

The source added that the participants also discussed how to provide training to Qatari civil servants at the institutions concerned with combating the slick.

Black Rain, Smoke Darkens Cities in Iran

LD2403202391 Tehran Domestic Service in Persian 1630 GMT 24 Mar 91

[Text] Smoke caused by the burning Kuwaiti oil wells today half-darkened the city of Ahvaz. According to the Islamic Republic News Agency, the smoke, which had lost its density within the past few days due to cloudy weather and black rainfall in Ahvaz, once again covered the sky over Ahvaz this morning and darkened the city.

The same report indicates that between this morning and 1700 today, the density of the smoke caused by burning oil products has increased. In some parts of Ahvaz city the stench of burning oil products could be felt.

Also this morning and this afternoon, black rainfall on the cities of Khorramabad and Kudasht and in the district of Pol-e Dokhtar darkened the skies over those regions.

According to the IRNA report, the density of smoke as well as black rainfall today completely darkened the sky over Kuhdasht for 40 minutes and street lamps were turned on. In Pol-e Dokhtar too, since 0800 this morning, black rainfall darkened the sky over that district.

The effects of black rainfall could be seen in the streets of Khorramabad this evening.

IRAN

Shortage of Potable Water Reported in Sanqar

91WN0265C Tehran RESALAT in Persian 27 Jan 91 p 11

[By Kolia'i and Hamid Hajian]

[Text] The city of Sanqar, with an urban population of 70,000 and the excessive urban development and building of residential complexes and suburban towns, has faced a drinking water shortage for a long time, such that in sections of the northern and central parts of the city, during many hours of the days and nights, people are without drinking water. So far, the efforts of the City Hall and the concerned officials to solve this problem have been unsuccessful, and apparently the transmission of water from the newly-dug wells is not possible due to the shortage of special pipes and the high cost of water outreach projects.

It is most appropriate for the office of the governor general of Bakhtaran and the regional water agency to pay serious attention to solving this essential and vital problem of Sanqar.

RESALAT office in Sanqar

Water Conservation Urged in Tehran

91WN0265B Tehran ABRAR in Persian 17 Jan 91 p 3

[Text] **Deputy director of water of the ministry of energy:**

The level of conservation has not been sufficient to prevent water interruption.

Following the warnings of the officials of the ministry of energy and the media and the cooperation of the people, in recent days, water consumption has been reduced by 10 percent.

According to a report by IRNA, this statement was made by an official of the ministry of energy in an interview with media correspondents.

Engineer Gholamreza Manuchehri, the deputy minister of energy for urban water and sewage, said in this connection: In the past four days, people have conserved 1-1.5 cubic meters of water per second, and this shows the attention of the people to the problems of water and is 190 percent of total conservation [as published].

He said: The ministry of energy and the officials of the water agency are doing their best to prevent water interruptions and problems for the people.

He emphasized: If precipitation continues at this rate in the area of the Karaj and Latyan dams and people do not conserve, water interruptions will be unavoidable.

Stating that water interruptions will cause problems in the execution of the work and a financial burden for the ministry of energy, he asked for more cooperation from the people.

Concerning the "water crisis committee" recently established in the ministry of energy, Manuchehri said: The crisis committee is a consulting committee, not an executive one. The decision has been made that the committee will present a plan for implementation in regards to the water crisis. Concerning the actions of this ministry in the near future, if the present crisis continues, he said: A reduction in the water pressure of government agencies and cutting off water to residential areas that use too much water as well as increasing the operational capacity of underground resources are among the necessary initiatives in the short term in order to prevent water interruptions, if possible.

Concerning water rationing, he said: If this situation continues, rationing will be a certainty. But the time has not been determined, and most anxieties center around the coming summer.

He pointed out: If desirable investments with regard to water are not made, considering the increase in population of Tehran and migration, in future years, Tehran will be faced with an even more critical water crisis.

The deputy minister of energy pointed out: The population of 2 million in Tehran of 1353 [21 March 1974-20 March 1975] has now reached 10 million, and it is projected that in 1390 [21 March 2011-20 March 2012], the Tehran population will reach 20 million. It will be very difficult to provide water for such a population, given the limited resources.

ISRAEL

Agricultural Changes Due to Water Shortage

91AE0252Z Tel Aviv MA'ARIV in Hebrew 25 Jan 91 p 2B

[Article by Aharon Pri'el]

[Text] Rain arrived this week, and in nice quantities, but even the war did not make those responsible for the water system forget the emergency situation in which we find ourselves in this area.

A cut of 150 million cubic meters of good water from the quotas for the agricultural sector will leave agriculture this year with the smallest quantity of water since the establishment of the state.

The calculation is simple, says Ilan Shapira, director of the Economics Department of the Agricultural Center: Agriculture had at its disposal one billion cubic meters of good water and another 400 million cubic meters of "other" types of water—such as run off water and grey water.

After the cut, agriculture will have to make do with an overall quantity of 750 million cubic meters annually: 450 million cubic meters of good water and another 300 million cubic meters of other water for irrigating the fields and the orchards.

Another 100 million cubic meters of good water are used for household consumption and farmyard uses.

With this quantity of water, agriculturalists will have to irrigate 2.2 million dunams—one million dunams of field crops, 385,000 dunams of vegetables and potatos, 21,000 dunams of hothouses, and 774,000 dunams of orchards—and fill 25,000 dunams of fish ponds.

In Shapira's estimation, the injury to most of the production branches due to the lack of water will be "very painful," and it will cause irreversible damage in some cases.

What will the cut in water quotas do to each branch?

- **Cotton:** Until four or five years ago, the cotton branch was one of the most central and profitable areas in agriculture. As of this year, it will be possible to grow cotton only by irrigating with low-quality water.

In the glory days of cotton, exports came to $200 million a year, from an area of 640,000 dunams. This year, excluding the losses from idle land and equipment, cotton exports will total "no more than $50 million."

Field crops: This production branch, covering an area of 620,000 dunams, on which fodder, corn, sunflowers, industrial tomatos, and other field crops were grown last year, "will take a very hard blow," except for fodder.

Cultivated areas will contract to 436,000 dunams, which will be irrigated with 150 million cubic meters of water. Some of the field crops that are grown for industry can be irrigated with run off water. Any quantity of water that remains from the quota will be shifted to the irrigation of fodder in order to feed livestock.

Vegetables, potatos, and flowers: Almost no damage will be done this year to these production branches, and the quantity of approximately 200 million cubic meters of good-quality water will not be cut for these crops. The cultivated area was 406,000 dunams last year and will remain the same this year. The reason this branch will not be damaged, explains Ilan Shapira, is the economic feasibility of producing fresh food for the domestic market, and the great profitability of vegetable and flower exports. "The price of water does not constitute the most important component in the costs of production," says Shapira.

Orchards: This production branch will be "the hardest nut to crack." The subject is multi-year crops. Without the quantities of water required for worthwhile output, citrus and deciduous orchards will dry up. According to economists from the Economic Department of the Agricultural Center, the cut in quantities of water is liable to reduce the area planted with orchards from 330,000 dunams to 70,000 dunams, which would supply domestic consumption and quantities for the export of special kinds of citrus, such as easily peelable fruit, for which there is a great demand in the European markets and which fetch a high price, resulting in export feasibility.

The citrus orchards consume 260 million cubic meters of water annually, and after the cut, according to figures from the Agricultural Center, "the citrus branch will be left with only 91 million cubic meters of water."

Avocado: It, too, is liable to suffer a very heavy blow. The planted area today comes to 85,000 dunams, and the cut in water quotas beginning this year is liable to reduce the planted area to a total of 25,000 dunams. The annual water consumption of the avocado orchards is 62 million cubic meters. The cut will leave this production branch with no more than 22 million meters of water a year. Avocado is one of the most important components of the agricultural export basket.

A great recovery began in the branch in the last two years, after "almost zero harvests" caused by natural disasters in previous years.

Apple trees: The planted areas will not change, and will remain at 43,000 dunams, but the quantity of water will be reduced from 35 million cubic meters to 25 million cubic meters. In these orchards, which produce surpluses every year, it will be possible to reduce the quantities of water without impairing the level of supply required for the domestic market. The pear orchards, that spread over an area of 8,000 dunams, will not be harmed, and the quantity of water for these orchards apparently will not be reduced, remaining as last year, at 4.5 million cubic meters.

Bananas: As large consumers of water in the amount of 60 million cubic meters, they will shrink to approximately 16,000 dunams from a planted area that today comes to 21,000 dunams. The allocation of water to the banana orchards will be reduced to approximately 49 million cubic meters.

Table grapes: Crops on an area of 32,000 dunams, and which consume today 17 million cubic meters, will have to make do with 14 million cubic meters of water, and table grape vineyards will shrink to 26,000 dunams. Wine vineyards occupy 20,000 dunams. According to economists from the Agricultural Center, these areas will not be reduced, but they will have to make do with a

water allocation of 3.5 million cubic meters, insted of the ordinary consumption of 4 million meters.

Shapira estimates that the new water policy will lead to unemployment of 10,000 producing agriculturalists who are not wage earners, and to the unemployment of an additional 25,000 persons who are engaged in transportation, storage, marketing of produce, and other work connected with the various producing branches in agriculture. "The cuts in the water quotas, which will cause a reduction in the cultivated areas, will be reflected in a considerable decline in purchases of agricultural inputs, such as insecticides, fertilizers, seeds, fuel, electricity, seedlings, packing materials, irrigation systems, and other fixed equipment."

Shapira says that in 1990 the turnover in the various producing branches in the agricultural sector came to approximately NIS 6 billion. For production in all of the branches, the agriculturalists purchased inputs in the amount of NIS 3 billion in 1990. But the cuts in the cultivated areas will reduce the purchases of inputs by an estimated NIS 1 billion.

According to him, a conservative estimate of the direct financial damage that will be inflicted on agriculturalists as a result of the cut in water quotas will amount this year to approximately NIS 500 million, "including the depreciation of idle equipment."

New Ecological Magazine Published

LD1203222791 Moscow Central Television First Program Network in Russian 1200 GMT 12 Mar 91

[From the "Television News Service" program]

[Summary] On Monday the Moscow Soviet Presidium decided to shut down all the nuclear reactors in Moscow. There are currently nine. It is possible to halt them by summer 1999.

A new ecological magazine, (EKOS), has been published. Its editor-in-chief is (Viktor Rudenko). There will be a presentation of the first edition this afternoon at the Novosti Agency building. It is being published by the Social and Ecological Union of the country and other sponsors.

Moscow Soviet Proposes Shutting Down Nine Nuclear Plants

LD1203020991 Moscow All-Union Radio First Program Radio-1 Network in Russian 1600 GMT 11 Mar 91

[Text] Protection from radiation. Something akin to persona [non] grata is the status of undesirability bestowed upon all of the capital's nine nuclear reactors. This verdict was passed today by the presidium of the Moscow City Soviet, as a result of their impact assessment. It was the residents of Krasnogvardeyskiy, Khoroshevskiy, and Sokolnicheskiy Rayons, upon whose territory these reactors are situated, who insisted upon this impact assessment. It was carried out by a commission set up by the presidium of the Moscow City Soviet, and was composed of specialists along with the deputies.

The commission investigated the radiation safety of every reactor, and it examined proposals to remove them from use. Although all nine of them are far less powerful than the reactors of a working nuclear electric power station, and are used only for research and academic purposes, the experts reached a unanimous conclusion—they consider that there is no point in their continuing to function in Moscow, and they also think that it is impermissible to build new nuclear reactors in the capital.

The Moscow City Soviet intends to propose to the USSR and Russian Soviet Federated Socialist Republic governments, in connection with this, that they adopt a decision on stopping their use. The impact assessment commission has carried out its task, but the Moscow City Soviet is in no rush to put an end to the matter. It has been decided that the Permanent Commission for Ecology and the Rational Exploitation of Natural Resources, with the support of other commissions, is to take the next steps on this matter, applying the analysis to similar production in the city.

Arkhangelsk To Undergo Satellite Survey

LD1703115391 Moscow All-Union Radio Mayak Nework in Russian 0640 GMT 17 Mar 91

[Text] [Announcer] The Cosmodrome and the Far North is the subject of a report by our correspondent, Valentin Bogomolov.

[Bogomolov] On clear, cloudless nights the citizens of Arkhangelsk sometimes see rockets rising into the sky above the city. Occasionally they are mistaken for UFOs but, at all events, everybody here knows that the world's busiest space launch site, Plesetsk, lies right next door to Arkhangelsk. But what benefit do Arkhangelsk Oblast and the Far North, which lie under the rockets' flight path, derive from the Cosmodrome? This is the question we put to Col. Grin, one of its commanders

[Begin recording] [Grin] Recently we launched the Informator spacecraft. This is the first experiment in a series intended to test ways of maintaining communications with remote regions of the country, with settlements, with geological prospecting teams, with those regions and installations within the country where the use of traditional means of communication is inappropriate and economically unviable.

Recently, at the end of December, we signed an agreement on the launch of the Resurs spacecraft, which is designed to survey the earth's mineral resources and carry out ecological monitoring. In other words, it will carry out a comprehensive survey of Arkhangelsk Oblast in the interests of the national economy. It will study the location of mineral resources, the use of timber resources, and the ecological situation in Arkhangelsk Oblast.

[Bogomolov] I know that geologists are obliged to acquire satellite charts from the Americans. Can't they see your space photographs?

[Grin] Of course they can. Furthermore, as a deputy in the oblast soviet, I took part in this work. Maps compiled from satellite measurements, including ones of other oblasts of the Soviet Union, were displayed at a session of the oblast soviet. Some of these measurements were taken during orbits over oblasts which neighbor Arkhangelsk Oblast.

[Bogomolov] Here is what Gen. Oleynik, the commander of the Cosmodrome, had to say about the benefit which Arkhangelsk Oblast derives from the Cosmodrome.

[Begin recording] [Oleynik] The program can be adjusted to find out how man's activity is affecting the environment in Arkhangelsk Oblast, where the ecological situation has deteriorated lately. But I do not know the activities of the Cosmodrome for this. Rather it is the fault of industrial enterprises located in Arkhangelsk Oblast. Our spacecraft will be able to assess the extent of air and water pollution, the state of forestry plantations, and the state of the soil. We will also be able to measure the impact of human activities in our region on the ozone layer.

[Bogomolov] But isn't this very expensive? Every launch costs many millions of rubles.

[Oleynik] The life of man and the future of the region are more important than the money we plan to spend on this reserch. [end recording]

[Announcer] I wholly agree with that last remark. I remind you that the life of man is more precious than the money spent on scientific research, especially as the next generation, in other words our children, is at stake. One hopes that our small loved ones will be able to eat clean food, swim in clean rivers, and breathe clean air. If they do, maybe they will be morally better than us. One very much hopes so.

New 'Socioecological' Newspaper Published in Minsk

PM1503141691 Moscow KOMSOMOLSKAYA PRAVDA in Russian 13 Mar 91 p 1

[Untitled report by unnamed correspondent from: "Did You Hear? Did You Read?" column]

[Text] A new republic newspaper, NABAT [THE TOCSIN], has begun publication in Minsk. The newspaper is of a socioecological, anti-Chernobyl, antinuclear orientation. "We want to unite the efforts of the state and the public to overcome this, the catastrophe of the century," the writer Vasil Yakovenko, its chief editor, said.

Kursk Officials 'Concealed' Radioactivity Information

LD2003224591 Moscow All-Union Radio First Program Radio-1 Network in Russian 1600 GMT 20 Mar 91

[Text] The Kursk Oblast procuracy has instituted proceedings because officials have concealed information on the radioactive contamination of the oblast's territory as a result of the Chernobyl Nuclear Electric Power Station catastrophe. It has been established that in the spring of 1986 there was radioactive fallout in the five rayons of the oblast, and the local administration knew about this. Nevertheless, this did not stop them from conducting the 1 May demonstration, by which they endangered the health of hundreds of thousands of people.

Sochi Post-Chernobyl Radiation Cleanup Nears Completion

PM0603160391 Moscow KOMSOMOLSKAYA PRAVDA in Russian 5 Mar 91 p 3

[D. Kukunov report: "'Glowing' Nights in Sochi City"]

[Text] L. Ponomarev, chief doctor at Sochi City Epidemiological Center, was very surprised by the appearance on television of a sensational feature on radiation pollution in the resort city. According to him, regular background readings started in Sochi a few days after the Chernobyl disaster. Active decontamination has been carried out since 1988. Just over a thousand of "glowing spots" which the program talked about were found in the course of these three years. And they were eliminated as far as was possible. The area of most of the spots did not exceed a few square meters.

How any of them are there in Sochi today? The chief doctor himself does not know this, nor does L. Gevorkyan, manager of the radiation laboratory. According to them, a department of the city's civil defense staff has a detailed map of the radiation situation. In any case, the city's Tsentralnyy Rayon is already close tp getting the all-clear; Lazarevskiy and Khostinskiy Rayons have been cleaned up; and some spots remain in Adlerskiy Rayon.

After completion of the cleanup of the city's territory (this should happen in March), the maximum background radiation will not exceed 60 microroentgens per hour.

Government Denies Novaya Zemlya Nuclear Tests Planned

91WN0273B Oslo NY TID in Norwegian 26 Jan 91 p 3

[Article by Lilly Naess: "New Nuclear Tests on Novaya Zemlya?"—first paragraph is NY TID introduction]

[Text] Both Bellona and Greenpeace in Norway have information that indicates that the Soviet Union is planning new nuclear test explosions on Novaya Zemlya this year. "No, there is no reason to believe this," press spokesman Andrey Kukushkin of the Soviet Embassy said. He pointed to President Gorbachev's initiative and wish for a complete test stop.

"There is much to indicate that a test explosion will take place as early as the end of April. The information comes from three separate, very well-informed Soviet sources that previously have been extremely reliable," Frode Haaland of Bellona said. Two of these sources are the same ones that warned Bellona about the Soviet Union's plans for nuclear testing last year. Later it became known that the Soviet Union had undertaken a test explosion on Novaya Semlya 24 October last year.

Haaland says that the Soviet Union has recently entered a four-month moratorium—that is, a full stop in test explosions.

"One can also deduce that a stop is convenient now because it is not possible to explode devices in winter. Therefore the timing agrees with the information we have received," Haaland said.

The environmental organization Greenpeace also has information from well-informed Soviet sources that the Soviets plan new nuclear test explosions this year, probably on Novaya Zemlya.

Massive Resistance

According to Greenpeace, the Soviet authorities will decide in the course of the year whether the main testing ground Semipalatinsk in Kazakhstan will be moved to Novaya Zemlya—an area that certainly will require a large investment. The test explosions in Kazakhstan have recently been stopped because of massive resistance from the people in the area. Previously an average of eight or nine test explosions a year were made there.

"Therefore it is not impossible that the two planned test explosions will take place on Novaya Semlya when the Soviets' moratorium is over at the end of April,"

Veronica Biong in Greenpeace said. This was denied by press spokesman Andrey Kukushkin of the Soviet Embassy: "No, this is not the case. There is no reason to believe that this will happen," Kukushkin said. He pointed to President Gorbachev's recent statement in the Supreme Soviet that he wishes contact with several other countries to reach an agreement on a full test stop.

Nor does the Norwegian Foreign Ministry know of any decision on Soviet test explosions.

Nordic Demand

"We have taken this up with the Soviets several times at a high level. There is a Nordic demand to inspect the testing grounds on Novaya Zemlya. There are also plans for a Nordic seminar on nuclear leakage in test explosions. Experts from both the United States and the Soviet Union will participate, according to Svein Saether, the Foreign Ministry's special adviser on disarmament. He thinks it is important to keep up the pressure on the Soviet Union, especially in view of the vulnerable Arctic environment in the region.

Udmurt Residents 'Alarmed' by Planned CW Destruction Plant

PM1803145391 Moscow IZVESTIYA in Russian 14 Mar 91 Union Edition p 1

[Item from roundup of IZVESTIYA, TASS, BALTFAX, URAL-INFORM, POSTFAKTUM, INTERFAX, REUTER, UPI reports: "The Inhabitants of Loza Are Afraid of the New Construction"]

[Text] Acoording to an URAL-INFORM agency report, the inhabitants of Izhevsk and many other cities in Udmurtia are protesting the planned construction of a plant for the destruction of chemical weapons in the vicinity of Loza Station. The journal KHIMIYA I ZHIZN recently published the opinion of 117 experts, including leading specialists from the USSR Academy of Sciences, the Ministry of Defense, and the Ministry of the Chemical and Petroleum Refining Industry, which, as a result of "lengthy and painstaking work," chose Loza Station out of 13 possible sites for the intended construction of such a plant. And although Udmurtia's Council of Ministers issued an announcement that no proposals have as yet been received by the republic's official organs of state power, the population is alarmed.

Tatar Nuclear Power Station Project Halted

PM0603152691 Moscow KOMSOMOLSKAYA PRAVDA in Russian 2 Mar 91 p 2

[R. Farzutdinov report: "From Here We Could Put Fear Into the Swedes"]

[Text] The Tatar nuclear power station has been added to the list of nuclear power industry facilities frozen under public pressure. The "greens'" massed attacks in the form of a multitude of pieces in the republic's press, a collection of signatures from the population against the building of the nuclear power station, and protest marches, ended in their indisputable victory. As a result an absolute avalanche of social problems has descended on the settlement of Kamskiye Polyany, where the construction workers and the collective of the station's potential operators are living. If, for the moment, there is still some success in providing the construction workers with peripatetic work in the nearby cities and villages, then what should be done with the engineering staff?

Neither the Union government, nor the Russian government, nor the government of what is now sovereign Tatarstan, to which the nuclear power station and construction site leadership has turned one after the other, has yet proposed any definitive possibility for the facility's redesignation. The most acceptable option, that of locating a thermal power station here, is hanging in the air due to a lack of energy resources in the locality. The project proposed by Tataria's leadership, to build a gigantic... hog raising complex in Kamskiye Polyany, elicits only a skeptical smile from the specialists.

Ekibastuz Power Station To Go Ahead After All

PM2403142191 Moscow Central Television Vostok Program and Orbita Networks in Russian 1530 GMT 20 Mar 91

[From the "Vremya" newscast: Report by Zh. Mananbayev, D. Akhmetov, identified by caption]

[Text] [Announcer] The first power unit of the Ekibastuz GRES-2 [State Regional Electric Power Station], located in a major industrial region of Kazakhstan, the Pavlodar part of the Irtysh River basin, has started producing electricity.

[Mananbayev] For many years the fate of the GRES-2 was in the balance, so to speak, mainly because of ecological requirements. The local fuel has a high ash content and therefore the emissions of harmful substances into the atmosphere are also high. Unfortunately, our industry does not yet produce high-grade ash-collectors.

However, the energy crises in many parts of the republic have made it necessary to finally adopt a decision to commission the Ekibastuz GRES-2 within the next few years.

[V.P. Volkov, chief engineer of "Ekibastuzenergostroy," identified by caption] This is the construction site of the Ekibastuz GRES-2. The No. 1 power unit is practically finished, it has been started up, the working commission document has been signed, and today, as you can see, smoke is already rising from the stack.

Eventually, the Ekibastuz GRES is to have eight power units. So far two power units have been assembled. That is to say, we are ready to proceed and assemble the No. 3 power unit. But there are some problems. We cannot proceed because the No. 3 power unit is to be an ecologically clean unit. No one knows what it will look like. So the question which needs to be resolved without delay is when it will be redesigned.

The best thing would be not to redesign it. We have a design. We are not likely to get anything better than what we already have. It is necessary to proceed with the construction. The collective is capable, we have the people, we have a blueprint; to stop now would be simply sinful.

USSR Supreme Soviet Resolution on Status of Aral Sea Measures

91WN0306A Moscow IZVESTIYA in Russian 9 Mar 91 Union Edition p 3

[Resolution of the USSR Supreme Soviet: "On the Progress of the Implementation of the USSR Supreme Soviet Resolution: 'On Urgent Measures To Ameliorate the Ecological Condition of the Country' With Regard to the Issues of the Aral Sea"]

[Text] The USSR Supreme Soviet notes that the Aral problem has become most acute as the greatest ecological catastrophe on our planet. The sanitation, disease-control, socioeconomic, and ecological situation has continued to deteriorate in a large region. An extreme situation in all spheres of life has developed in the Karakalpak ASSR, Kzyl-Orda, Khorezm, and Tashauz Oblasts; an abrupt deterioration of the living and health condition of the populace has set in; overall and infant mortality rates have increased.

The ecological situation in the region is out of human control. The climate of the Aral area has deteriorated abruptly. The drift of salts and dust from the drained bottom of the sea has increased. Dangerous pollution with pesticides and salinization of the main sources of drinking water in the region, the Amu Darya and Syr Darya [Rivers], has continued. The table of corrosive subsurface water has risen; gardens and vineyards have died, and structures have been destroyed. The fertility of soils has declined, and pastures have deteriorated. Due to salinization, the fisheries of the sea have become absolutely insignificant. The genetic pool of valuable species of fish has been depleted. The destructive influence of desertification on the monuments of culture, history, and art of worldwide significance has increased. Economic losses inflicted on the national economy by this ecological catastrophe come to several billion rubles a year in the entire Aral area.

The desertification of land is spreading to still new areas. In addition to the territory of the Aral area within the borders of the Karakalpak ASSR, Kzyl-Orda, Tashauz, and Khorezm Oblasts, it has spread to the area of some rayons of Aktyubinsk Oblast in the Kazakh SSR, Bukhara Oblast in the Uzbek SSR, and Chardzhou Oblast in the Turkmen SSR. The deteriorating quality of the natural environment is exacerbated by the poor development of productive forces and a poor standard of social and living conditions of the populace in the region.

The drying of the Aral Sea and the desertification of the Aral area resulted from an incorrect choice of the strategy of locating productive forces within the tributary area of the sea by state and economic organs of the country and Union republics, the inefficient use of land and water resources, and the dominance of cotton and rice as single crops.

Egregious mistakes were made in designing, building, and operating irrigation systems. Unit water consumption is above design specifications which, given the obvious inadequacy and neglected condition of the collector-drainage network, brings about the extensive salinization of land and its withdrawal from crop rotation.

In the years of perestroyka, the shroud of silence has been removed from the Aral crisis; measures have been taken to mitigate the influence of desertification and to improve living conditions and the sanitary and disease-control situation. In the last three years alone, about 1,900 kilometers of main-line and collective-use water pipelines have been built in the region together with interfarm, city, and settlementwide distribution networks. About three hundred desalination units have been installed that make it possible to provide drinking water for more than 580,000 people. Hospitals with 2,200 beds and polyclinics for 1,500 visits have been built. Comprehensive health check-ups have been conducted; measures to improve the health condition of the populace and to partially restore the natural environment in the delta of the Amudarya are being implemented.

In the course of carrying out the USSR Supreme Soviet Resolution dated 27 November 1989: "On Urgent Measures To Ameliorate the Health Condition of the Country," a government commission, the Union and Republic "Aral" Consortium, the "Aral" Scientific Research and Coordinating Center and its Nukus Division have been set up. A competition aimed at developing a concept of restoring the sea has been held. The USSR/UNEP [United Nations Environment Program] draft: "Participation in the Development of an Action Plan for Restoring the Aral Sea" has been compiled. Scientists from our country and a working group of UNEP experts have determined that an equilibrium in the ecological system of the region cannot be attained without restoring the Aral Sea.

At the same time, the USSR Supreme Soviet believes that the measures being taken are inadequate. Previous decisions made on the issues of the Aral are being carried out unsatisfactorily in Uzbek SSR, Kazakh SSR, Turkmen SSR, and Karakalpak ASSR. Most installations of the productive and nonproductive sphere have not been commissioned on time. The issue of job placement of the populace has become more acute, and social tension has increased.

The flawed practice of squandering the water resources of the region has not been overcome; the issue of providing good-quality drinking water for the populace is resolved slowly. The discharge of polluted water into the Amu Darya and Syr Darya continues. The pace of the comprehensive reconstruction of irrigation systems, construction of water supply facilities, sewer systems, and

water-treatment facilities, and crop-rotation improvement and soil conservation efforts has been slow. The development of a pattern of comprehensive use and protection of water, land, and other natural resources of the Aral Sea tributary area has been delayed. Sufficient funds and material resources from the Union and republic budgets have not been provided. Issues of protecting the health of the populace have been resolved unsatisfactorily, especially as far as the construction of treatment and prevention establishments, creation of necessary material and technical facilities, and availability of health-care personnel are concerned. Food consumption in Karakalpakia, Kzyl-Orda, Tashauz, and Khorezm Oblasts is considerably lower than average in the corresponding republics or the USSR as a whole. The situation is also exacerbated by the fact that the share of foodstuffs in which the content of pesticides and other pollutants exceeds standards is growing.

The USSR Supreme Soviet **resolves:**

1. To consider a fundamental improvement in the sanitary and disease-control conditions of life of the populace and socioeconomic and ecological situation in the Aral area, as well as stabilization of the level and subsequent restoration of the Aral Sea, an all-Union program task.

The USSR Cabinet of Ministers, together with the supreme state organs of government of the Uzbek SSR, Kazakh SSR, Turkmen SSR, Tajik SSR, Kyrgyz SSR, and Karakalpak ASSR, will develop in the first half of 1991 and submit to the USSR Supreme Soviet a draft concept to preserve and restore in stages the Aral Sea, aligning it with conditions for the socioeconomic development of the republics of Central Asia and Kzyl-Orda Oblast of Kazakhstan.

To develop and adopt in the third quarter of 1991 the Long-Range Union and Republic Program for 1991 through 1995 and for the period until 2005 aimed at a fundamental improvement in the socioeconomic, sanitary, and disease-control conditions of life of the populace of the Aral area and at restoring the Aral Sea. In view of the aggravation and abrupt deterioration of the ecological situation in the region, to adopt within one month a Union and republic program of urgent measures for 1991-1992 aimed at improving the medical and sanitary conditions of life of the populace and socioeconomic and ecological situation in the Aral area as the first stage of the aforementioned Long-Range Program. To monitor support for the execution of this program.

Financing for efforts on the Aral issue as a whole, including scientific research, will be provided by pooling the funds of the republic and Union budgets, furnishing for the most part material and technical resources allocated from the center.

2. The USSR Cabinet of Ministers, together with the supreme organs of state government of the republics of this region, will develop in the first half of 1991 normative documents setting forth the borders and the status of an ecological disaster zone in the Aral area, regulations on additional measures to compensate the populace of the Aral area based on the degree of the impact of desertification and other factors affecting the health of people unfavorably, including the introduction and increases in regional remuneration coefficients.

The draft law: "On the Social Protection of Citizens Affected by the Consequences of an Ecological Disaster in the Aral Region" will be submitted in 1991.

Measures will be taken to increase the volume of guaranteed water supply in 1991 through 2000 with a view to preserving the Sea of Aral as a natural unit, as well as to creating regular living conditions in the lower reaches of the Amu Darya and Syr Darya.

3. To approve a proposal of the republics of Central Asia and Kazakhstan to set up an interrepublic commission for restoring the Aral Sea and to establish a fund for aiding the populace of the Aral area. To consider it necessary to develop and sign in 1991 a long-term interrepublic treaty on the rational use of water resources in the Aral Sea Basin.

4. The state organs of government of the Union republics will take measures to ensure full-value foodstuffs for the populace of the Aral area and to speed up the implementation of measures taken with a view to improving the health of the people. To consider it necessary to develop the chapter: "Food Intake of the Populace of the Aral Area" and the curative and treatment subprogram: "Children of the Aral" as parts of the Long-Range Program on the Issues of the Aral. To pay special attention to developing a network of health-care facilities, retaining health-care cadres, supplying drugs and medical equipment, and expanding scientific research into medical and biological aspects of disease prevention.

To implement practical measures for speeding up the provision of quality drinking water for the populace of the lower reaches of the Syr Darya and Amu Darya by considering the possibility of supplying pure water from outside sources, as well as building plants for bottling drinking water.

The USSR Cabinet of Ministers will provide assistance with resolving these issues.

5. To recommend that the Supreme Soviets of the Union republics and the Karakalpak ASSR step up the monitoring of the previously adopted decisions aimed at switching to strictly scientific guidelines for agricultural production in the tributary area of the Aral Sea, which will insure high ecological standards in the utilization of nature and the rational use of water, land, and plant resources. To implement measures aimed at discontinuing the discharge of polluted water into the Amu Darya and Syr Darya, reducing and putting in order the use of pesticides, and improving the protection of public health. To ensure carrying out a set of crop-rotation and

soil-conservation measures. To render all kinds of assistance to local environmental-protection, soviet, and economic organs.

6. The USSR Academy of Sciences and the USSR State Committee for Science and Technology will complete in 1991 the creation of the Institute of Ecology and Water Management Problems of the Aral Sea in the city of Nukus at the facilities of the Nukus Division of the "Aral" NIKTs [Scientific Research and Coordinating Center]. To reinforce scientific and information support for the socioeconomic development of the region and coordination of the activities of scientific research organizations in the republics of Central Asia and Kazakhstan concerning these issues. To consider it necessary to set up divisions of this institute in the cities of Tashauz, Aralsk, and Urgench. To take measures, in cooperation with the ministries and departments of the USSR, aimed at developing a modern system for ecological monitoring in the Aral area in the course of converting defense industries, using the available potential of the Baykonur space launch complex and scientific resources of the republics.

To develop a comprehensive interdepartmental Union program of scientific research on the issues of the Aral.

7. To enhance the role of the tributary-area water-management associations Amu Darya and Syr Darya in the management of water resources in the tributary area of the Aral Sea involving the extensive introduction of automatic control systems. To envisage an enhanced status of these associations and the granting of the status of state inspectors to their employees. To transfer water-management maintenance organizations, water intakes, water engineering systems, and reservoirs along the Amu Darya and Syr Darya to the tributary-area associations in 1991, as envisaged by previous decisions of the government of our country.

8. To recommend that the USSR Cabinet of Ministers and the superior organs of state power in the Union republics consider the issue of creating an organ of state government, entrusting it with the functions of interrepublic distribution of water resources and the monitoring of water consumption in the country.

9. The USSR procurator general will create in 1991 an interrepublic environmental-protection procuracy in the tributary area of the Aral Sea.

10. The USSR Supreme Soviet Committee for Issues of Ecology and Rational Use of Natural Resources and the USSR Supreme Soviet Committee for International Affairs, together with the USSR Ministry of Foreign Affairs, will approach the leadership of the UN Environment Program (UNEP) with a request to provide assistance with developing and implementing projects for restoring the Aral Sea and to incorporate the issue of the Aral Sea into the UN Program for Desertification Control.

11. The USSR Supreme Soviet Committee for Issues of Ecology and Rational Use of Natural Resources and the USSR Supreme Soviet Committee for Protecting Public Health will monitor the execution of the present resolution on a regular basis.

[Signed] Chairman of the USSR Supreme Soviet A. Lukyanov [Dated] Moscow, the Kremlin, 4 March 1991

Shortage of Funds Hampers Improved Antipollution Measures at Perm Factory

PM1203164591 Moscow Central Television Vostok Program and Orbita Networks in Russian 1530 GMT 10 Mar 91

[From the "Vremya" newscast: Report by M. Klepov and V. Mokhov, identified by caption]

[Text] [Announcer] In the report which you are about to see we return to ecological problems. As is well known, great damage is being inflicted on the environment by industrial effluent. Unfortunately there are not many examples of effective purification of this effluent. It is therefore a special pleasure to report a major achievement in this sphere at the Perm Electrotechnical Plant.

[Klepov] One of the most harmful production processes for man is electroplating. Briefly, it consists of coating metals with various surfaces. If heavy metal ions enter the human organism, they cause incurable diseases.

Now, for the first time in world practice, a technological process for the purification of electroplating effluent has been introduced at the Perm Electrotechnical Plant. The process was developed at the Ufa Petroleum Institute. It is based on a biochemical method. That is, special micro-organisms are cultivated for this purpose. A production unit has been built at the plant and the necessary equipment has been installed. [video shows unit] Some 300 cubic meters of effluent are rendered harmless per day. This is sufficient for the plant's purposes. Incidentally, this method could also be used at other enterprises. Work on this has already begun.

At the same time scientists have sought to perfect their ideas, and they have come to the conclusion that the effectiveness of the new process could be sharply increased. If this is achieved, the production process will be rendered completely harmless.

However, it has emerged that there is no money to continue this work. The funding of scientific research from the center has been discontinued, and the Electrotechnical Plant has no money either, since it is not making a profit. Because of acute shortages of raw materials the plan is not being fulfilled. All the ties with suppliers have been disrupted.

Scientists and specialists are unanimous. It is necessary to continue subsidizing science, otherwise many acute problems will remain unsolved or will be resolved only partially, as in the given case.

Biologist Outlines Kamchatka Nature Preservation Trends, Needs

91WN0243A Moscow PRIRODA in Russian No 11, Nov 90 pp 39-46

[Article by Professor Valentin Sergeyevich Kirpichnikov, doctor of biological sciences, senior scientific associate-consultant at the Cytology Institute of the USSR Academy of Sciences: "Kamchatka's Fate Rests in Our Hands"; first paragraph is source introduction]

[Text] Valentin Sergeyevich Kirpichnikov, professor and doctor of biological sciences, is a senior scientific associate-consultant at the Cytology Institute of the USSR Academy of Sciences. His scientific interests lie in the area of evolutionary theory, genetics and fish breeding. He is a winner of the N.I. Vavilov Prize and a Hero of Socialist Labor.

Preserving the wealth of nature which surrounds us has become as urgent a task for mankind as disarmament. This task is particularly pressing for our country, where, as a result of unthinking policies and irresponsible leaders many regions have ended up in a catastrophic state. Among those urgent measures to save nature one of the most important is the creation of a vast network of protected territories—wildlife sanctuaries, preserves and national parks.

Lately a great deal of attention has been devoted to the creation of national parks throughout the world. Unfortunately, only a few of the 15 of the national parks which exist in the USSR are actually operating. The three best—Ignalinskiy Park in Lithuania, Gauya Park in Latvia and Lakhemaaskiy Park in Estonia—are seriously in need of material and moral support. Other national and "natural" parks exist largely on paper or lead a miserable existence, such as Zhiguli Park on the Volga (Samara Bend), Losinyy Ostrov (Elk Island) near Moscow, Sevan in Armenia, and many others.

The problem of expanding the network of wildlife preserves and organizing national parks has particular significance for Kamchatka—the amazing eastern outskirts of our country, an area which is unique in its beauty and the richness of its natural life.

Tall mountains (mud volcanoes), covered in ice and snow, with unpassable thickets of dwarf alder, birch, mountain ash and procumbent evergreen cedars on their slopes; oddly bent, frequently very large Erman birch trees; nine active and many extinct volcanoes; transparent lakes, rivers and streams, which are filled during the summer with large shoals of salmon rushing uncontrollably to spawn; rapids (bars) at the mouths of rivers, at which hundreds of adroit bearded seals, hunting for fish, stand guard; thermal springs and geysers; grasses which grow three meters in a month; flowers which replace each other in quick succession and open up in front of one's very eyes; brown bears, the ancient masters of Kamchatka, who are passionate fishermen—all this and much more makes a deep impression on the person coming here for the first time from the west if, of course, he genuinely loves nature and he has not grown completely callous. I would like to add the special quiet of the Kamchatka forest, only occasionally disturbed by the monotone cries of the "deaf" cuckoo, the cawing of the black crow and the singing of a few song birds. Kamchatka has no snakes or frogs and consequently in the heat of summer it is difficult to protect oneself against the mosquitoes, especially in the taiga forests.

The Kamchatka Peninsula is undoubtedly unique in the beauty and striking combination of many unique features of nature. It can compete with any corner of the earth in either the northern or the southern hemisphere. The natural life of Kamchatka is diverse and changeable; frequent eruptions of the volcanoes continue to change the shape of its mountains, and they cover the dry land and water with ash. It is our duty to preserve this miracle as well as to make it a accessible to all the people. Kamchatka gives us not only the joy of being with the beauty and power of nature, it provides many of the most valuable edible fishes. Every year the fishermen of Kamchatka catch almost 1.5 million tons of fish. The high-quality Pacific salmon are especially valuable; they bring the country substantial income.

Unfortunately, at present the danger of losing Kamchatka with all its natural resources is no less great than the threat hanging over the Aral, Azov and Caspian seas; Baykal, Balkhash and Ladoga; the Neva inlet of the Gulf of Finland; the southern part of Krasnodarskiy Kray and Moldavia. It is essential to preserve Kamchatka and at present that is still possible. It is necessary not only to protect the very vulnerable natural life of Kamchatka but also to adopt radical measures to restore and expand its main resource—the Pacific salmon, which every year come in million-strong shoals from the ocean to the rivers, streams and lakes of Kamchatka to reproduce. After spawning, all the salmon die, fertilizing with their bodies the Kamchatka waters, which are poor in organic matter, thus contributing to the better survival of their offspring.

It is very easy and very dangerous to disturb the balance of all the processes taking place in the waters and on the land of Kamchatka, a balance which ensures the preservation of its unique plant and animal world, including the large shoals of salmon. The sad experience of the declining salmon stocks in the Amur, in the coastal area and on Sakhalin provide eloquent evidence of this.

The damage inflicted on the natural life of Kamchatka by the uncoordinated and uncontrolled activities of geological expeditions, tourists and various agencies of the agricultural industry and of the forestry, mining and other industrial sectors, is very great. Loggers are destroying in a barbaric way the forests of the Kamchatka River valley, thus drying up the its tributaries and undermining the reproduction of salmon in the river. The cutting of trees has led to where submerged logs—in places—densely cover the bottom of the peninsula's main salmon artery. The sovkhozes located in the river valleys are ruining the salmon rivers of Kamchatka; at

the same time the zealous reclamation specialists are disturbing to an inordinate degree the water conditions which have developed over centuries.

The defenders of nature on Kamchatka have managed with great effort to slow up the construction of hydroelectric stations on the rivers—they would result in many problems for the peninsula's natural life and fishing industry. At the same time, despite sharp protests from the community, explosive work continues, as does the removal of earth from the slopes of the Petrovskaya Mud Volcano, which is completely covered in birch forests and is rich in mushrooms. And this magnificent natural park, which rises almost 400 meters above Petropavlovsk and extends for a good 15 kilometers, is a favorite recreation spot for people from the city. Avachinskaya Bay, one of the most beautiful in the world, is rapidly becoming polluted; it is approaching a critical state. The ominous list of thoughtless, ecologically intolerable measures which are being carried out on Kamchatka, could be continued.

Recently the vast Kronotskiy Sanctuary, which was formed in the 19th century on the eastern coast of the peninsula, was restored. It includes the magnificent Kronotskaya Mud Volcano, which rises 3.5 km into the sky and other volcanoes as well as the Uzon area—a volcanic crater with a network of warm and cold lakes and sulfurous springs. Nearby is the remarkable "valley of the geysers," unique in the USSR, which was opened about 50 years ago. The preserve includes the beautiful Kronotskoye Lake, which contains loach and "kokani," a local variety of Pacific red slamon.

In 1988 a preserve was developed on southern Kamchatka; it includes the deep Kurilskoye Lake and its environs. The lake is located between three volcanoes and is rich in salmon. There are many bears along the shores of the lake, as well as the streams and rivers which feed into it.

There is no doubt that it is essential to develop at least two or three more sanctuaries, including a minimum of one in northern Kamchatka in the Koryak Autonomous Okrug. The sanctuaries, however, are accessible only to staff members and a few scientists who come from other scientific institutions to work. They are also visited by a "selected few"—highly-placed officials and well-known figures of science and culture, as well as the occasional foreigner. For all the other residents of our country the road to the sanctuaries and preserves is usually closed. Protecting the natural environment by banning visits to any particular unique area is very common in the USSR (the mountainous part of the Crimea can serve as an example). Sometimes such restrictions are essential but certain regions of Kamchatka should be opened for tourists, both domestic and foreign.

This can be done by establishing national parks, visits to which will enable tens of thousands of tourists to become acquainted with the wonderful natural life of Kamchatka without tangible harm to it. It is well known that the national parks in the United States and certain other countries flourish while preserving the uniqueness of their natural life. They bring in substantial incomes, comprised of entrance fees, payments from concessions and other services which operate within their boundaries, and other fees. A significant portion of the income from each park, if parks are developed on Kamchatka, could be utilized to pay for security guards, hunting experts, guides, fish conservation inspectors, foresters, gardeners, ecology specialists and other people who will ensure that all the features of the area are preserved within the park's boundaries.

The scientist I.I. Lagunov, who died recently, specialized in the study of this area. He was a passionate enthusiast for the protection of nature on Kamchatka and a tireless traveller; 15 years ago he first proposed that all of Kamchatka should be made into a sanctuary. He emphasized the need to preserve Kamchatka's natural life—its very pure rivers and lakes, the enormous shoals of salmon, the forest resources in the Kamchatka River valley, the very rich tundra areas and the reindeer farming in the north. In this process priority must be given to fishing—to providing our country with millions of tons of high quality fish.

The way to save Kamchatka, to preserve and expand its natural wealth, including its fish resources, is not only to create there a network of preserves, sanctuaries and national parks, but also to take a scientifically-grounded approach to the development of various branches of man's economic activities on Kamchatka. This concerns above all priority for the fishing and fish-processing industry, as well as measures for breeding salmon. Fishing and fish-processing on Kamchatka are extremely neglected; many claims could be lodged against the fishing industry, while fish breeding is hardly developed at all. I will cite only one vivid example of scandalous mismangagement. In mid-August 1987 more than 2 million red-salmon breeding sires had returned to spawn in Kurilskoye Lake in southern Kamchatka, and although the spawning grounds there were already filled beyond their capacity (crowding in spawning areas is very harmful to salmon reproduction), another 1.5 million breeding sires (approximately 4,000 tons of fish), which could have been caught by fisherman, were put into the lake due to the lack of packaging in the near-by Ozernovskiy Fish Plant. As a result the salmon spawning conditions in the lake and its tributaries declined significantly and very valuable fish output was lost. There was a similar history in 1988-1990.

The equipment on many fishing vessels and at nearly all the fish-processing plants is very poor, but the main problems are the lack of coordination in the activities of various organizations, the inadequate maneuverability of the fleet and irregularities of supply. Matters are not good with regard to fish breeding, which even now could increase supplies of the two most common species of Pacific salmon—the humpbacked and Siberian salmon. For a long time Kamchatka had only one fish-hatchery (on Lake Ushki, in the lower reaches of the Kamchatka

River). This hatchery has brought only harm: as ichthyologists from the Kamchatka Division of the Pacific Ocean Scientific-Research Institute of Fishing and Oceanography (KoTINRO) have established, increasing the roe collection from the chum and red salmon has led to a significant reduction in the number of breeding sires of these two species returning from the ocean to spawn. Trapping producers during spawning has undermined the bases of the natural reproduction of the lake's salmon. After several decades of such obviously harmful work the plant was finally closed last year. The effectiveness of the work done by the new Malkinskiy Experimental Fish Hatchery Plant, which is located in the upper reaches of the Bolshaya River, is still not clear. A fish hatchery, which was purchased in Japan, is being built on the Paratunka River, which runs into Avachinskaya Bay, although the advisability of building it on this river, which is not rich in salmon and is heavily polluted, is doubtful. In my view, it would be better to locate it on one of the two main salmon rivers of the peninsula, the Kamchatka (east coast) or the Bolshaya (west coast). At the same time it is essential to think through carefully the specialization areas and the species of salmon the new fish hatcheries will concentrate on, as well as the age to which the young will be raised and the food which will used. And consideration should be given to the extensive experience accumulated by Japan, Norway and other countries in raising salmon.

One of the most important pisicultural measures is the fertilization of the cold Kamchatka lakes, which are poor in feed organisms. Successful experiments which have been conducted under the leadership of the well-known hydrobiologist I.I. Kurenkov (recently deceased) have shown that introducing phosphates can significantly raise the productivity of lakes, sharply increase the survival rate of salmon fry and, as a result, increase the number of breeding sires which enter Kamchatka lakes from the ocean every year. The economic effect of this kind of experiment, according to modest estimates, is 8-12 million rubles per year.

The development of the salmon fishery on Kamchatka (as in other regions) depends on our knowledge of the biological characteristics of the salmon, and in particular, the age and genetic structure of their populations, the dynamics of the spawning shoals, their migration paths, etc. The effectiveness of the salmon industry can be improved without undermining salmon stocks only if there is a high level of scientific research into these fish, especially research into their biology during the marine period of their lives. Science has an ever greater role to play in the breeding of salmon: other countries are making broad use of modern genetic methods in the artifical reproduction of salmon, specifically data on the genetic variability of populations obtained during the electrophoresis of proteins; they obtain polyploid (multichromosonal) forms and they change the sex of fish, using special crossings and hormonal reactions. Recently attempts have been made to shift useful genes from one species of salmon to another.

KoTINRO is engaged in scientific research on Kamchatka salmon, as are study teams and individuals at other sector and academic institutes. It is the lack of coordination among the work plans of the sector and academic institutes which interferes the most with the scientists' work. It is essential to have a single, authoritative coordinating center, which would direct all salmon research on Kamchatka and in the adjacent regions. Several years ago the USSR Ministry of the Fishing Industry established an all-Union scientific and technical program entitled "Salmon." However, the research planned on the basis of this program was not carried out; there were not enough specialists to head up the individual departments, and financing was not provided for the scientific work.

There is an acute personnel problem at present. The Far East has very few highly-qualified specialists. KoTINRO no longer has a single doctor of science, and it is receiving almost no talented young college graduates. The situation is made worse by the lack of idealism and the materialism of a significant segment of modern young people, who grew up in the period of stagnation, when there was no glasnost. The task of saving the natural life of Kamchatka and converting it into a sanctuary must become the ideological foundation for young people at the scientific institutes on Kamchatka and in the coastal area. However, the practical side of the question must not be forgotten; the everyday annoyances which young people inevitably confront, especially the serious housing problem, must be remedied.

The effectiveness of the scientific research being carried out on Kamchatka is also lessened as a result of the catastrophic condition of KoTINRO's field laboratories and fixed observation points. Two very old laboratories (on the Dalneye and Kurilskoye lakes) were founded more than 50 years ago by the remarkable scientists, F.V. Krogius and Ye.M. Krokhin, who were deeply involved in the study of Kamchatka. They lived for half a century on Dalneye Lake, carrying out continuous comprehensive research on the lake—its flora and fauna, the complex biogeochemical processes taking place in the watery depths, and the dynamics of the lake's salmon population. In the whole world this lake has no equal in the degree to which its biocenosis has been studied; only one lake in Canada can begin to compete with it in this regard. Long-term continuous work is being conducted by a group of scientists at Kurilskoye Lake as well.

It is difficult to overemphasize the significance of these projects, which have made it possible to resolve a number of very important theoretical problems in ichthyology, hydrobiology and limnology, and which have contributed to the successful development of the salmon fishery throughout the world. In 1973 genetic and population research on salmon was started at Dalneye Lake, and later at Kurilskoye Lake as well; this research has explained a great deal about the genetic structure of salmon populations and has made it possible to improve the methods for breeding salmon.

Unfortunately, in both laboratories scientific work is now being carried out in absolutely unacceptable conditions, in poorly adapted and crowded quarters. The laboratories have virtually no modern scientific equipment or scientific literature (even in Russian); the electricity is turned on for only a few hours a day, the food supply is poor; transportation and communications do not work well. The barriers on the rivers, which make it possible to make an accurate count of the number of salmon coming every year to spawn and of the fry moving into the ocean are not good: they should have been replaced a long ago with stationary, reliable hydroinstallations. I will not talk about the state of other KoTINRO observation points, I will point out only that they are completely unsuitable for carrying out any serious scientific studies. The question of renovating KoTINRO observation points, or more accurately of building new, modern laboratories, of building dams and providing housing and basic everyday conveniences for the scientific staff must be resolved immediately. Only if that is done will the fishing industry on Kamchatka, and specifically the prediction of the catch, be based on a reliable scientific basis.

Access to scientific information is no less important for the development of research; KoTINRO and its laboratories require sources of up-to-date scientific literature, including foreign literature. The exchange of information must be mutual and rapid. It is essential for Soviet scientists to participate in all major international congresses, conferences and symposia devoted to the study of fish, for young specialists to obtain internships in the best foreign laboratories and to invite major specialists from abroad to work in our country for extended periods. There should be no attempt to economize on these measures, and indeed it would be unprofitable to do so!

The fate of Kamchatka depends to a large degree on the right set of decisions about how to best combine the fishing industry and agricultural production, as well as on the level of development in other sectors of the peninsula's economy: the cutting, floating and processing of timber; hunting; mining for minerals; power generation and local industry, which serves the needs of Kamchatka's indigenous population. The main task consists in the coordinated and judicious development of all these sectors without damage to Kamchatka's natural life, and with the absolute condition that priority be given to the fishing industry.

Agricultural production here is in a singular position as Kamchatka has very little land for agricultural expansion. This is particularly noticeable in the Kamchatka River valley, where additional land for agricultural crops can be obtained only by clearing forest land. It has already been noted that the destruction of the forest threatens the very existence of this region, which is rich in fish and taiga animals.

Increasing Kamchatka's production of potatoes and other vegetables is possible only by intensifying field cultivation or by developing hothouse farming using thermal sources. It is extremely dangerous to expand the use of fertilizers and pesticides for field cultivation of vegetables since this leads to the poisoning of salmon rivers and the cessation of natural reproduction by the salmon. Intensive land cultivation can also lead to the rapid erosion of soil, to increased washout of the cultivated soil layer into the rivers.

The only correct way to develop vegetable production on Kamchatka is to expand greenhouse growing. It provides very little output as yet, despite an abundance of powerful thermal sources. The potential for obtaining vegetables in greenhouses and hotbeds is extremely great. However, there is much that is not clear in this area: we need serious scientific research aimed at improving the technology for growing vegetable crops and creating "pure" varieties which are adapted to growing in greenhouses and which do not require mineral fertilizers.

The establishment of new animal-raising sovkhozes on Kamchatka should be rejected decisively. The productivity of animal husbandry should be raised by searching for the breeds of cattle and poultry which are best adapted to local conditions and to raising new highly-productive and stable breeds and hybrids.

The problem of how to best combine agriculture and salmon fishing on Kamchatka is complex and has not yet been resolved definitively. There is no doubt that when agriculture is either being established or intensified, particular caution is needed here; it is essential to avoid the negative consequences of expanded agricultural production, especially the irreversible pollution of the peninsula's rivers and lakes.

The question of the forest industry's future is clearer. Given the present rate of tree cutting, in 20 years (and maybe sooner) the peninsula's main river will become shallow; many of its tributaries will dry up, and the spawning places of the most valuable salmon will disappear. Unfortunately, at the present time logging is already being carried out in previously inviolable, protected zones of the Kamchatka River basin. If irresponsible logging is continued, the damage to the fishing industry will greatly exceed the income brought in by the forestry enterprises. The climate will also change in unpredictable ways. It is necessary to reduce immediately the area being logged and to completely halt the practice of floating logs down rivers. It is essential to correct the situation at Kamchatka's Klyuchevskiy Forestry Combine—obviously the mismanagement at this enterprise has become habitual for its managers. Exports of Kamchatka wood to other regions of the USSR and abroad should be rejected decisively.

A few words should be said about commercial hunting. Many commercially valauble animals live on Kamchatka, including sable, lynx, fox, otter, deer and bighorn sheep. In the northern part of the peninsula one encounters moose, and at the mouths of the rivers there are many seals. The sea otters are of great value. There are bears everywhere.

The main requirement for commercial hunting on Kamchatka is that it must be very carefully organized. The shooting of bears and moose must be regulated (on the basis of licenses) in order to maintain their numbers at an optimal level.

The peninsula has no mining industry at present, but there are plans to start mining gold and non-ferrous metals, as well as pumice. Vast deposits of pumice were formed in the environs of Kurilskoye Lake as a result of a catastrophic volcanic eruption which took place several thousand years ago. It was at that time that a deep lake (up to 300 meters in depth) developed. There is persistent talk about searching for oil and gas on the shelf along the coast of Kamchatka. The realization of these plans will lead to irreversible damage to Kamchatka's natural life and to the destruction of its fish resources. An exception may be made in the future for the extraction of pumice in southern Kamchatka (on the east coast), if it is organized within reasonable limits and if environmental-protection and fish-protection measures are strictly observed. There can be no discussion of oil-production on the very rich shelf of Kamchatka. It should not be forgotten that the Kamchatka fisherman catch a great many fish off the shores of Kamchatka and almost 40,000 tons of crabs.

Kamchatka's electricity needs may be met to a significant degree through the construction of geothermal power plants—the expansion of the existing Pauzhetskaya Plant and the accelerated building of the new one—the Mutnovskaya Plant. In the opinon of specialists the normal operation of these plants requires the development of effective methods for removing harmful impurities from the thermal waters. This purely technical task should be resolved quickly. The hot waters and steam from the springs should also be use for curative spa treatments and, as noted above, for raising vegetables in hothouses.

The work of all local enterprises must be strictly regulated. It is essential to work toward ecological purity and wastefree production.

Many extremely varied and quite complex questions will arise during the implementation of the above-enumerated measures and others, the final and only goal of which is to preserve the unique natural life on Kamchatka and to increase its very valuable fish resources. If national parks are established and mass tourism is organized on Kamchatka, it is essential to determine how many tourists can be accommodated on Kamchatka every year and how their daily needs can be met without causing irreparable harm to nature.

The entire range of complex questions on how to combine the interests of fishing and farming requires the establishment on Kamchatka of strong, well-equipped scientific institutions concerned with pisciculture and agriculture; young talented scientists, who know all the latest research methods, must be recruited to work in these institutions. It is essential to have a single coordinating center, which is directed by authoritative specialists with the highest qualifications and which has the right to a deciding vote. It seems to me that this kind of center could emerge from the special inter-agency technical council organized under the Kamchatka Oblispolkom with participation by a number of major scientists, both local and staff members from scientific institutes located in Vladivostok, Moscow, Leningrad and other cities. This council would meet regularly and possess broad powers, including the right to allot the necessary fundss, as well as the right to veto, upon examination, any projects for the development of Kamchatka's economy. The council must resolve issues concerning the organization of new sanctuaries and national parks on Kamchatka. The latter must be self-financing; they could be directed by joint-stock companies, possibly mixed and international. The determination of the site and boundaries of future national parks must be approached with great caution, taking into account the need to preserve the easily-damaged unique natural life of Kamchatka.

In concluding it is essential to touch on the question of whether it is advisable to site a large number of military units and garrisons on Kamchatka. There are no longer any secrets in this area: "military Kamchatka" has been studied by the Americans better than it has been by us. Many military subdivisions are guilty of causing substantial pollution of Kamchatka and destroying its natural life; the pollution of Avachinskaya Bay is especially dangerous. In the light of the reduction in armed forces which is now taking place in many countries of the world and the warming of the international climate, we can proceed boldly with the "disarmament of Kamchatka."

Kamchatka must become a reserve in order to to protect all of its natural wealth, especially the salmon. The only alternative to a reserve is the industrialization of Kamchatka, but this would lead to its death. There is no doubt that the benefits of preserving the primordial natural life on Kamchatka and its miraculous salmon will exceed many times over the income from all possible "non-fish" production units. It should not be forgotten that the development of agriculture and mining will lead to irreversible changes in the water conditions and climate of Kamchatka, to a catastrophe comparable in scale to what has befallen Aral. It is essential to save Kamchatka from destruction—we need it, as does all mankind!

REGIONAL AFFAIRS

EC Environment Council Meeting Results Outlined

Results Reviewed

91AN0171A Brussels EUROPE in English
22 Dec 90 p 7

[Article: "Environment Council: Overview of Very Positive Results of Session of 20-21 December"]

[Text] Brussels, 21 December 1990 (Agence Europe)—The 20-21 December session of the Environment Council ended on last Friday evening, with the positive results from the early part of the meeting being confirmed. Below is a schematic overview of the results:

1. *Emission standards for cars*: The Council adopted its "common position" on standards for cars with medium and large cubic capacity in line with those for engines with small cubic capacity that were established in June 1989. In practice, the EEC has gone along with the strictest standards (those of the United States and Sweden). The most difficult aspect to settle was that on tax incentives; Denmark's intention to grant tax advantages for cars that conform to the American standards would have threatened the unity of the Common Market by creating discrimination between cars conforming to European standards. The Council came to agreement regarding strict EEC standards, so that Denmark gave up its plan. The Council also established the procedure for future adoption of even stricter standards which, however, will not be applied before 1996 (in order to give the car industry a reasonable guarantee of stability in terms of standards).

2. *Treatment of urban waste water*: Significant progress was made, but agreement is still not unanimous. The Council is counting on reaching complete agreement during the first Environment Council of 1991.

3. *Protection of the ozone layer*: The Council reached agreement on the basis of the draft Regulation on a timetable for the progressive reduction (and eventual elimination) of CFC, halon, and carbon tetrachloride emissions. The new EEC timetable is stricter than the one established under the Montreal Protocol. In particular, the total elimination of CFCs is set for 1 July 1997 (rather than the beginning of the year 2000). Hence, the EEC is stepping into the vanguard. Ripa di Meana said that he hoped the United States, Japan, and other countries would follow the EEC's example.

4. *Environmental protection in the Mediterranean region (MEDSPA programme)*: The Council reached agreement in this action programme which covers all of the Mediterranean region (Community and non-Community). The funding for the first two years is ECU 25 million, which will serve to finance pilot and demonstration projects and investments other than infrastructures. Third countries may take part in these.

5. *Classification and labelling of dangerous substances*: The Council made progress toward the elimination of certain anomalies in the current regulations and towards improving their effectiveness. It is planning to take a decision during the first Environment session of 1991.

6. *Hazardous waste*: The Council reached an agreement but it must again consult the European Parliament, as it modified the legal basis of the draft Regulation (the basis chosen is Article 130S/EEC). Household waste will be the subject of specific rules.

7. *Resolution on the urban environment*: The Council took note of the European Commission's Green Paper on this subject and adopted a Resolution that recognises the existence of a "Community dimension," while stressing that the main responsibility for managing the urban environment belongs to the local, regional, and national authorities of the Member States. In point of fact, EEC transport, energy, and regional development policies have a direct impact on the environment of cities. The Commission is being asked to set up a group of experts to study the situation, advise the Commission, and study how the EEC can help to improve the urban environment by providing funding. The Commission has indicated that it will carry out wide-scale consultations regarding the ideas and policies contained in its Green paper and will present appropriate proposals.

Initial Debate on Use of Economic and Fiscal Instruments To Fight Against CO_2—Reservations of Three Delegations

Ripa di Meana has given the Ministers the Commission's working document called: "Political Options for a Community Objective of Stabilising CO_2 Emissions," which gives consideration to the introduction of a tax on energy. Several Ministers were in favour of this, but three delegations—Spain, Greece, and Ireland—were said to have strong reservations, as they felt their countries' economic development will necessitate greater energy consumption, and this should not be jeopardised by additional fiscal burdens. The Council did not reach any "conclusions." It merely took note of the Commission document. In any case, the debate is still open on a basic and innovative aspect of environmental policy—the use of economic and fiscal instruments.

Comments

91AN0171B Brussels EUROPE in English
22 Dec 90 p 5

[Article: "Environment Council: The Ministers Adopt the Ruling on CFCs and Fix a Common Position on Emissions From Cars of Medium and Large Cylindric Capacity—Messrs. Ripa di Meana and Ruffolo Pleased"]

[Text] Brussels, 21 December 1990 (Agence Europe)—A joint press conference has been held by Italian Minister Ruffolo, president of the Environment Council, and Commissioner Carlo Ripa di Meana to announce two significant results reached during the session of

Thursday 20 and Friday 21 December—results that they found highly satisfactory. The minister thus stated that the Council had unanimously determined a "common position" on the draft directive against air pollution by motor vehicles.

According to the new directive, added the minister, carbon monoxide emissions should decrease by 57 percent as compared to the current percentage, exhaust fumes and Nox by 25 percent, and particles by 50 percent. The directive which is the subject of a common position concerns cars over 1400 cc an thus consolidates the Community ruling on the subject of air polluting emissions as it completes the June 1989 directive on emissions from cars of a cylindric capacity below 1400 cc. As from enforcement of both directives, all cars in Community must by fitted with a three-way catalyser. Minister Ruffolo also announced that the Council will take an explicit qualified majority stand before 31 December 1993 on a Commission proposal which, to be presented before 31 December 1992, will take into account the technical progress in order to allow a further reduction of limit values. The reduced limit values, said the minister, will not be applicable before 1 January 1996 concerning the "reception" (type-approval) of new makes of cars. These limit values, however, cannot serve as a basis for tax incentives from adoption of the new directive scheduled for before the end of 1993 (therefore during 2 years).

Commissioner Ripa di Meana stated that, thanks to this decision, the Community has caught up lost time—which should be counted as about fifteen years—by the European car industry: From now on the "Community ranks in the fore at world level."

The question of CO_2 emissions, which is still absent from this major effort, is to be taken into account in car consumption, added the commissioner who announced that the Commission would make proposals on this in due course. For the commissioner, further to these proposals on cars, it is also time to accelerate the work on "the clean lorry." Finally, Ripa di Meana urged the oil industry to play the game as it will also be asked to make a major effort, notably concerning the sulphur content in fuel. On this point, Minister Ruffolo said that the Council expected a draft proposal on the cleanliness of fuel. As regards diesel fuel, the commissioner pointed out that the tests used in the EC were different from those currently effected in the United States. He considered that these past months have been serious. Also, American industry thought it was able to put aside diesel for private cars, contrary to European industry for which the question is posed in quite a different logic.

On the other hand, the minister welcomed the unanimous adoption (necessary) of the ruling relating to substances which diminish the ozone layer (the better known ones being the CFCs) and which anticipates the reduction or ban provided in the London protocol (which had amended the Montreal protocol in a stricter sense). The commissioner hopes that the United States and Japan "could join us, the Community not however being paralysed by their cruising speed." Ripa di Meana has used the argument of economic and fiscal instruments in the context of CFC reduction which are necessary to support industrial effort. It is in fact, according to the commissioner, a significant precedent: The success of CFC reduction is possible if it is accompanied by a fiscal panoply. Ruffulo added that the fiscal measures taken in this direction could be harmonised at Community level on Commission proposal.

At the beginning of the evening, the Council reached an agreement as to the content of the draft ruling instituting Community action for the protection of the environment in the Mediterranean region (MEDSPA), funded for the first two years with ECU 25 million. On the other hand, the Council has reached an agreement of principle on the draft directive relating to dangerous waste.

Ozone Layer Timetable

91AN0171C Brussels EUROPE in English 5 Jan 91 pp 11-12

[Article: "EEC/Environment: The European Community Takes the Lead in the Struggle To Protect the Ozone Layer With the Adoption by the Council of a Regulation for Early Application of the Deadlines in the Montreal Protocol"]

[Text] Brussels, 4 January 1991 (Agence Europe)—The Environment Council of 21 December reached agreement on the content of a draft regulation concerning substances that deplete the ozone layer. Intended to replace the 1988 regulation, in the light of recent scientific findings, it will impose stricter controls on these substances. The timetable contained in the regulation goes further than the one adopted during the review in June 1990 in London of the Montreal protocol on substances that deplete the ozone layer (with the exception of halons, the timetable remains identical). A comparative table follows.

Products	Montreal Protocol	EEC Regulation
Existing CFCs (reference year 1986)	50% by 1.1.1995	50% by 1.1.1992
	80% by 1.1.1997	85% by 1.7.1995
	100% by 1.1.2000	100% by 1.7.1997
Other fully halogenated CFCs (reference year 1989)	20% by 1.1.1993	50% by 1.1.1992
	85% by 1.1.1997	85% by 1.7.1995
	100% by 1.1.2000	100% by 1.7.1997

Products	Montreal Protocol	EEC Regulation
Halons (reference year 1986)	freeze 1.1.1992	freeze 1.1.1992
	50% by 1.1.1995	50% by 1.1.1995
	100% by 1.1.2000	100% by 1.1.2000
Carbon tetrachloride (reference year 1989)		50% by 1.1.1992
	85% by 1.1.1995	85% by 1.1.1995
	100% by 1.1.2000	100% by 31.12.1997

EUROPE recalls that the Commission also announced its intention of introducing the issue of CFCs in its work programme concerning the development of economic and tax instruments and in its programme concerning the labelling of hazardous substances. It will present appropriate proposals before the end of the year.

EC Commission Presents NORSPA Program

91AN0172A Brussels EUROPE in English 5 Jan 91 p 8

[Article: "Environment: The European Commission Proposes Environmental Protection in Coastal Zones and Waters in the Northern Part of the Community (NORSPA)"]

[Text] Brussels, 4 January 1991 (Agence Europe)—The European Commission has approved and will submit to the Council a draft regulation concerning environmental protection in coastal zones and waters in the Irish Sea, the North Sea, the Baltic, and the northeastern part of the Atlantic Ocean in a programme called NORSPA. The new programme is complementary to the MEDSPA action programme for environmental protection in the Mediterranean region, on which the Environment Council of 20-21 December 1990 reached agreement. Community action will consequently cover all EEC marine and coastal zones: NORSPA will particularly allow intervention in sensitive and endangered zones such as the North Sea and the Baltic Sea.

The draft regulation would provide financial support for:

a. Demonstration projects intended to reduce and eliminate pollution as much as possible;

b. The promotion of actions encouraging the use of technologies that are not harmful to the environment of coastal zones.

As submitted to the Council, the regulation covers a ten-year period which is divided into two five-year phases. The Commission has estimated the budget needed for the implementation of the programme for 1991-1992 at 10 million European currency units.

EC Publishes Forest Health Report

91AN0173A Brussels EUROPE in English 5 Jan 91 p 13

[Article: "Environment: European Commission Forest Health Report of 1989 Shows That a Considerable Part of Forests Are Damaged But That There Is Improvement as Compared With 1988"]

[Text] Brussels, 4 January 1991 (Agence Europe)—The European Commission has published the 1989 report on the health of Community forests. The report is a result of the three-year application of a Council Regulation on the protection of the Community's forests against atmospheric pollution. The report is a followup of the Forest Health Report 1987-1988. It gives the results of national forest health reports and the European Community's forest damage survey of 1989. That year, the forest damage inventory enabled comparable data to be collected in respect of 47,772 sample trees throughout the Community.

The results of the survey indicate that a considerable part of the forests in the EC Member States are damaged. Although the overall situation does not show clear changes in vitality, certain tree species show a pronounced deterioration. Observations in 1989 showed that 9.9 percent of the trees were damaged (defoliation of more than 25 percent). The overall figures for defoliation in 1987 and 1988 were respectively 14.3 percent and 10.2 percent. Also, a discolouration of more than 10 percent was observed for 16 percent of the trees. For 1987 and 1988, these figures (from smaller samples) were respectively 13.5 percent and 13.2 percent.

Conifers were slightly more damaged than broadleaves. In 1989, a defoliation of more than 25 percent was found for 11.8 percent of the conifers and 8.4 percent of the broadleaves. Of the more common species found in the EC, the coniferous species of firs and spruces show the most defoliation with respectively 17.3 percent and 20 percent of the trees damaged. The broadleaves—eucalyptus and broad oaks—show the lowest degree of defoliation, with respectively only 1.6 percent and 3.5 percent of the trees damaged.

Discolouration is approximately the same for broadleaves (16.3 percent) as for conifers (15.8 percent). The percentage of trees with a discolouration of more than 10 percent was highest for cork oak with 45.8 percent. For holm oak, this percentage was lowest (7.0 percent). Among the conifers, fir and pine showed relatively high percentages of discoloured trees with respectively 23.4 percent and 18.2 percent.

There is a major problem in separating changes in crown density or colouration attributable to atmospheric pollution from those caused by other factors. However, research has indicated that atmospheric pollution in many cases plays a significant role in forest decline. In many cases, notes the report, the existence and extent of

forest damage cannot be explained without considering an influence of atmospheric pollution.

Regulations on Waste Disposal in EC Prepared

91AN0113A Luxembourg OFFICIAL JOURNAL OF THE EUROPEAN COMMUNITIES in English No C289, 17 Nov 90 pp 9-28

[Article: "Proposal for a Council Regulation (EEC) on the Supervision and Control of Shipments of Waste Within, Into, and Out of the European Community"—COM(90) 415 final]

[Excerpt] The Council of the European Communities,

Having regard to the Treaty establishing the European Economic Community, and in particular Articles 100a and 113 thereof,

Having regard to the proposal from the Commission,

In cooperation with the European Parliament,

Having regard to the opinion of the Economic and Social Committee,

Whereas Council Directive 84/631/EEC, as last amended by Directive 86/279/EEC, organizes the supervision and control within the Community of transfrontier shipment of hazardous waste;

Whereas the completion of the internal market by 1 January 1993 will remove internal frontiers, in particular as regards the movement of waste, and implies that there must be new procedures for the supervision and control of waste shipments as this will no longer be possible at frontiers;

Whereas the Community has signed the Basle Convention of 22 March 1989 on the control of transboundary movements of hazardous wastes and their disposal, thereby necessitating an adaptation of Community Regulations;

Whereas the relevant provisions of Article 39 of the Lome Convention of 15 December 1989 (Fourth ACP [African-Caribbean-Pacific countries]-EEC Convention) must also be integrated into Community legislation;

Whereas the implementation of Directive 84/631/EEC has revealed certain difficulties relating in particular to the scope of the Directive and the procedure reserved for nonferrous metal waste, and these difficulties need to be remedied;

Whereas it is important to organize the supervision and control of shipments of all wastes, subject to the making of exemptions for certain types of waste;

Whereas the legislation therefore needs to be completely revised;

Whereas the Community's waste strategy aims to reduce the production of waste to the lowest technologically and economically feasible level and reduce shipments to strict essentials in order to provide the best protection for the environment and human health;

Whereas a distinction must be made between, on the one hand, waste shipments within the Community and, on the other, exports out of the Community, imports into the Community, and transit through the Community for disposal or for further use outside the Community;

Whereas the Council resolution of 7 May 1990 underlines the importance of the Community being self-sufficient in waste disposal;

Whereas, inside the Community, shipments of waste must be submitted for control as soon as they leave the jurisdiction of one authority and enter that of another; whereas it is important that such strict control and supervision be ensured right from its production up to its final disposal or further use, enabling the relevant authorities to be duly informed of its nature, movement, and disposal so that they can take all necessary measures for the protection of human health and the environment, though without creating unjustified or disproportionate barriers to intra-Community trade or distorting competition;

Whereas, in particular, it must be possible to raise objections to waste shipments intended for disposal if there is an authorized disposal center significantly nearer, and capable of ensuring an appropriate waste treatment;

Whereas less stringent rules may be applied to waste which is to be further used whilst reserving the possibility of action at the point of destination if the conditions of further use endanger human health or the environment;

Whereas, as regards exports out of the Community, imports into the Community, and transit through the Community, Community Regulations must comply with the provisions of the Basic Convention and the Fourth ACP-EEC Convention while adhering to the GATT rules, and the convention of 20 May 1987 on a common transit regime, concluded between the Community and the EFTA [European Free Trade Association] countries;

Whereas the provisions of the Basle Convention are to promote an environmentally sound management of waste and, in consequence, to limit shipments as far as possible, duly taking into account the options taken by the third States concerned; whereas they are in line with the Community strategy for waste management;

Whereas, in this context, the principle of prior written consent of the State of destination must be observed;

Whereas shipments to developing countries of waste intended for disposal must be reduced as a matter of priority in due compliance with decisions on waste taken by those countries;

Whereas provision must be made for the waste to be taken back if the shipment cannot be completed in accordance with the terms of the contract;

Whereas, in the event of illegal traffic, the person whose action is the cause of such traffic must take back and/or dispose of the waste and, should he fail to do so, the competent authorities of dispatch or destination, as the case may be, must themselves intervene;

Whereas, in as much as it takes place within the Community, each waste shipment must be subject to a provision of security, except shipments of waste intended for further use, that take place between competent authorities within the Community;

Whereas Member States must provide scope for appeal by the notifier against the decisions taken by the competent authorities;

Whereas, in order to ensure that waste does not constitute an unnecessary risk, it must be properly packaged and labelled; whereas the instructions to be followed in the event of danger or accident must accompany the waste in order to protect man and the environment from any danger that might arise during the operation;

Whereas, in consultation with the Commission, Member States must designate specialized customs offices at the Community entry and exit points;

Whereas, in accordance with the "polluter pays" principle, the costs of implementing the notification procedure, including the costs of inspection and analysis, must be borne by the notifier;

Whereas Member States must provide the Commission with any information relevant to the implementation of this Regulation, and must in particular prepare yearly reports on the basis of which the Commission must draw up a consolidated report;

Whereas a committee must be set up for the preparation of the documents provided for by this Regulation and for the adaptation of the Annexes to scientific and technical progress,

Has adopted this Regulation:

Title 1: General

Article 1

This Regulation shall apply to shipments of waste both within and into or out of the Community.

Article 2

1. For the purposes of this Regulation:

a. *Waste* means any substance or object which is covered by categories listed in Annex I and which the holder disposes of, intends to dispose of, or is required to dispose of;

b. *Competent authorities* means the competent authorities designated either by the Member States in accordance with Article 24 or by non-member States;

c. *Competent authority of dispatch* means the competent authority for the area from which the shipment is dispatched;

d. *Competent authority of destination* means the competent authority for the area in which the shipment is received, or in whose area waste is loaded on board before disposal at sea;

e. *Correspondent* means the central body designated by each Member State and the Commission, in accordance with Article 25;

f. *Notifier* means any person to whom the duty to notify is assigned, or in other words the person referred to hereinafter, who proposes to ship waste or have waste shipped:

- the person whose activities produced the waste (original producer), or
- where this is not possible, a collector licensed to this effect by a Member State, or
- where these persons are unknown or unable to notify, the person having possession or control of the waste (holder), or
- in the case of import into or transit through the Community of waste, the person designated by the laws of the State of dispatch;

g. *Consignee* means the person or undertaking to whom or to which the waste is shipped for disposal or for further use;

h. *Disposal* means any use of waste listed in Annex II.A;

i. *Authorized centre* means any establishment or undertaking authorized or licensed pursuant to Article 6 of Council Directive 75/439/EEC, Article 8 of Council Directive 75/442/EEC, Article 6 of Council Directive 78/403/EEC, or Article 9 of Council Directive 78/319/EEC;

j. *Further use* means any use of waste listed in Annex II.B;

k. *State of dispatch* means any State from which a shipment of waste is planned or made;

l. *State of destination* means any State to which a shipment of waste is planned or made for disposal, for further use, or for loading on board before disposal at sea;

m. *State of transit* means any State, other than the States of dispatch or of destination, through which a shipment of waste is planned or made;

n. *The Basle Convention* means the Basle Convention of 22 March 1989 on the control of transboundary movements of hazardous wastes and their disposal;

o. *The Fourth Lome Convention* means the Lome Convention of 15 December 1989.

2. The following shall be excluded from the scope of the Regulation:

a. The gathering of waste from households and from retail trade establishments;

b. The offloading to shore of waste generated by the normal operation of ships, including waste water and residues, provided that such waste is the subject of a specific international instrument;

c. Substances mentioned in Article 2 (1) of Directive 75/442/EEC;

d. Waste intended for further use and featuring on a list to be drawn up in accordance with Article 31, provided that it is not covered by Annex III or, if it is covered by Annex III, does not possess any of the characteristics referred to in Annex V, and that it is not covered by Annex IV.

Title II: Movement of Waste Within the Community

Article 3

1. Where the notifier intends to ship waste intended for disposal or to have it shipped from the jurisdiction of one competent authority into that of another or to have it routed through the jurisdiction of one or several authorities, and without prejudice to Articles 13 and 14(2), he shall notify the competent authority of destination and send a copy of the notification to the competent authorities of dispatch and of transit.

2. Notification shall mandatorily cover any intermediary state of the shipment from the place of dispatch until its final destination.

3. Notification shall be effected by means of a standard consignment note, (hereinafter referred to as the "consignment note"), to be drawn up in accordance with Article 31.

The consignment note shall be issued by the competent authority of dispatch. It shall be printed in an official language of the Community selected by the competent authority of dispatch, and completed in an official language of the Community which is acceptable to the competent authority of destination. Any further information, including a translation, shall be supplied by the notifier at the request of the competent authorities concerned.

4. In making notification, the notifier shall supply the information requested on the consignment note, with particular regard to:

- the source and composition of the waste, including the producer's identity, and in the case of waste from various sources, a detailed inventory of the waste, and the identity of the original producers where known;
- the arrangements for routing and for insurance against damage to third parties;
- the measures to be taken to ensure safe transport and, in particular, compliance by the carrier with the conditions laid down for transport by the Member States concerned;
- the identity of the consignee of the waste, who should possess an authorized centre with adequate technical capacity for the disposal of the waste in question under conditions presenting no danger to human health or the environment;
- the existence of a contractual agreement with the consignee on the disposal of the waste. Should the waste be shipped between two establishments under the control of the same legal entity, this agreement shall be replaced by a declaration by the entity in question undertaking to dispose of the waste.

Article 4

1. On receipt of the notification, the competent authority of destination shall send an acknowledgement to the notifier. It shall have 30 days following dispatch of the acknowledgement to consent to the shipment with or without reservations, to refuse permission for the shipment, or to request additional information. Such refusal or reservations shall be based on objections made in accordance with paragraphs 2, 3, and 4. The competent authority of destination shall send a copy of the acknowledgement, and of its reply, to the other competent authorities concerned and to the consignee.

2. The objections referred to in paragraph 1 must be substantiated on the basis of laws and regulations relating to environmental protection, public order, public safety, or health protection which are in accordance with Community law or with international conventions on this subject concluded by the Member State concerned in accordance with Community law.

3. The competent authority of dispatch may, within 20 days of receipt of the copy of the acknowledgement, raise objections to the planned shipment if there is an authorized centre significantly nearer than the one chosen by the notifier and which uses suitable technologies to ensure a high level of protection of the environment and human health.

The competent authority shall take account in its evaluation of all relevant circumstances, such as the geographical situation, the nature of the waste, the economic aspects of the operation (in order to prevent distortion of competition), the capacity and the availability of the planned centre, or the implementation of programmes or plans drawn up pursuant to Article 5 of Directive 75/439/EEC, Article 6 of Directive 75/442/EEC, Article 6 of Directive 76/403/EEC, or Article 12 of Directive 78/319/EEC. It shall give reasons for its decision. Where necessary, it shall be for the notifier to prove that disposal cannot be effected nearby in the manner and under the conditions described above.

The objections may also be substantiated by the fact that the notifier or the consignee has previously been guilty of illegal trafficking.

These objections shall be conveyed to the notifier with copies sent to the competent authorities concerned and to the consignee.

The competent authority of destination may, in accordance with the same procedure, exercise the right to raise such objections.

4. Within 20 days of receipt of the copy of the acknowledgement, the competent authority of dispatch may raise objections on the grounds that the shipment of waste conflicts with obligations resulting from international agreements on this subject concluded by the Member State of dispatch in accordance with Community law. Such objections shall be conveyed to the notifier of the waste with copies sent to the competent authorities concerned and to the consignee.

5. Without prejudice to the provisions of paragraphs 1, 2, 3, and 4, the competent authorities of dispatch, destination, and, where appropriate, of transit shall have 20 days following the notification in which to lay down, if appropriate, conditions in respect of the transport of waste within their jurisdiction. These conditions, which must be notified to the notifier, with copies sent to the competent authorities concerned, may not be more stringent than those laid down in respect of similar shipments occurring wholly within their jurisdiction and shall take due account of existing agreements.

6. Once the competent authorities of destination and, where applicable, the competent authorities of dispatch are satisfied that the problems giving rise to their objections have been solved, they shall immediately inform the notifier in writing, with copies sent to the consignee and the other competent authorities concerned. If there is then an essential change in the conditions of the shipment, a new notification shall be made.

7. The shipment may be effected only after the notifier has received authorization from the competent authority of destination. The latter shall give the authorization only in the absence of objections raised by himself or by the competent authority of dispatch, or subject to reservations further to these objections.

The competent authority of destination shall signal his assent by affixing his seal to the consignment note. Any reasons for refusal shall be sent to the notifier, to the consignee, and to the other competent authorities.

Article 5

1. With due regard for the obligations imposed on him by Article 3, the notifier may use a general notification procedure where waste having essentially the same physical and chemical characteristics is shipped regularly to the same destination via the areas of jurisdiction of the same competent authorities.

2. The competent authorities concerned may make their agreement to the use of this general notification procedure subject to the subsequent supply of additional information. If the notifier does not compose the waste as notified or meet the conditions imposed on its shipment, the competent authorities concerned may withdraw their consent to this procedure.

3. Under a general notification procedure, a single notification within the meaning of Article 3 (1) may cover several shipments of waste over a maximum period of one year. The indicated period may be shortened ex officio by the competent authorities concerned.

4. General notification shall be made by means of the consignment note.

Article 6

1. If the notifier has received the authorization, he shall complete the consignment note and send copies to the competent authorities concerned three working days before the shipment is made.

2. A specimen of the consignment note, together with the authorization, shall accompany each shipment.

3. All undertakings involved in the operation shall complete the consignment note at the points indicated, sign it, and retain a copy thereof.

4. Within 15 days following receipt of the waste, the consignee shall send a copy of the duly completed consignment note to the notifier and to the competent authorities concerned.

Article 7

1. Waste intended for further use shall be subject to the provisions of Articles 3, 4, and 6 unless the following conditions are fulfilled:

a. The notifier makes a declaration on a standard document which shall be drawn up in accordance with Article 31 and must accompany the shipment, to the effect that these substances are intended for the operations in question, and forwards a copy of this document to the competent authorities concerned. The competent authority of destination shall send an acknowledgement to the notifier within three working days of the notification;

b. The document also states:

- the origin and composition of the waste, including the identity of the producer and, in the case of waste from various sources, a detailed inventory of the waste and, if known, the identity of the original producers;
- the identity of the consignee, who must possess an appropriate authorized centre;
- the existence of a contractual agreement with the final consignee.

Should the waste be shipped between two establishments under the control of the same legal entity, the aforesaid agreement shall be replaced by a declaration by the entity in question undertaking to make further use of the waste;

c. The producer may carry out the shipment or have it carried out only in the absence of reasoned objections, as mentioned in Article 4 (2), from the competent authority of destination within 15 days following the date of sending the acknowledgement;

d. The consignee declares in the same document, which he shall forward to the competent authority of destination within 15 days of completion of the operations, that these operations have actually been carried out. If the operations have not been carried out within 30 days of receipt of the waste, the consignee also declares without delay on a copy of the document, which he shall send to the competent authority of destination, the period within which these operations will actually be carried out.

2. The competent authority of destination may decide that it will not raise objections regarding shipments to a specific consignee. It may limit its decision to a certain period.

Article 8

This Title shall also be applicable to the shipment of waste taking place between the jurisdictions of competent authorities of the Community with transit via one or more third States, the competent authority of which shall receive a copy of the notification from the notifier and shall exercise all rights conferred on it by Article 12.

Title III: Export of Waste out of the Community

Article 9

1. All exports of waste covered by Annex III (unless they do not possess any of the characteristics contained in Annex V), as well as waste covered by Annex IV shall be prohibited:

a. To a State not party to the Basle Convention;

b. To the area south of latitude 60 degrees south.

2. All exports to ACP States of waste covered by Annexes III and IV shall be prohibited; this prohibition does not preclude Member States, to which an ACP State has decided to export waste for treatment, from re-exporting the treated waste to that ACP State.

3. Without prejudice to Articles 13 and 14(2), all exports of waste shall be prohibited:

a. To a State which prohibits all imports of such wastes or which has not given its written consent to the specific import of this waste;

b. If the competent authority of dispatch has reason to believe that the waste will not be managed in accordance with environmentally sound methods in the State of designation;

c. If they have not been authorized in accordance with Article 10(2) or (3).

4. In addition, the competent authority of dispatch may authorize the export of the waste only if:

a. The technical capacity and the necessary facilities or desired sites for disposing of the waste in question by efficient and environmentally sound methods are not available within the Community; or

b. The State of destination has stated that the waste in question is needed as a raw material for recycling or recovery industries.

5. The competent authority of dispatch shall require that the waste for export be managed in an environmentally sound manner throughout the period of shipment and in the State of destination.

Article 10

1. Where waste is exported from the Community for disposal or for further use in a third State, the notifier shall send the notification to the competent authority of dispatch by means of the standard consignment note referred to in Article 3(3), with copies sent to the consignee of the waste and the other competent authorities concerned.

The notifier shall ensure that the notification enables the third States concerned to evaluate the consequences for human health and the environment of the proposed shipments.

The competent authority of dispatch shall at once send the notifier a written acknowledgement of the notification.

2. The competent authority of dispatch shall authorize the shipment only if it has received written confirmation from the notifier that the latter has received:

a. The written consent of the State of destination to the planned shipment;

b. Confirmation from the State of destination of the existence of a contract between the notifier and the consignee specifying environmentally sound management of the waste in question;

c. Written consent to the planned shipment from the State(s) of transit, that are Parties to the Basle Convention, provided that such State(s) has (have) not waived this in accordance with the terms of that Convention.

The competent authority of dispatch shall take its decision no later than three months after receipt of the notification and shall send it to the notifier. He shall send a certified copy of the decision to the other competent authorities concerned and to the customs office of departure from the Community.

3. Notwithstanding paragraph 2, where the waste is disposed of in a third State bordering on the last Member State of transit, the latter shall be entitled to assign to its competent authority of transit the right to issue the authorization or to raise objections provided for in that paragraph. A Member State intending to exercise the right conferred upon it by this paragraph shall so inform the Commission and the other Member States. It may exercise this right only three months at least after so doing.

4. Without prejudice to paragraph 1, the competent authority of dispatch and, if applicable, the competent authorities of transit in the Community shall have 20

days following notification in which to lay down, if appropriate, conditions in respect to the shipment of waste in their area of jurisdiction. These conditions, which shall be forwarded to the notifier, with a copy sent to the other competent authorities concerned, may not be more stringent than those laid down in respect of similar shipments effected wholly within the area of jurisdiction of the competent authority in question.

5. Not later than 20 days after receipt of the notification, the competent authority of dispatch may raise objections on the grounds that the shipment of waste conflicts with obligations resulting from international agreements on this subject concluded by the Member State concerned, with due regard for Community law. Such objections shall be forwarded to the notifier with a copy sent to the other competent authorities concerned.

6. The consignment note shall be issued by the competent authority of dispatch. It shall be printed and completed in an official language of the Community selected by the competent authority of dispatch. Any additional information, including a translation, shall be supplied by the notifier at the request of the State of destination in its own language or in a language acceptable to it.

7. Article 6(1), (2), and (3) shall apply by analogy. A specimen of the consignment note shall be delivered by the carrier to the last customs office of departure when the waste leaves the Community.

8. As soon as the waste has left the Community, the customs office of departure shall send a copy of the consignment note to the competent authority that issued the authorization.

9. If, six weeks after the waste has left the Community, the competent authority that conveyed the authorization has received no information from the consignee about his receipt of the waste, it shall inform without delay the competent authority of destination. It shall take action in a similar way if, 90 days after the waste has left the Community, it has received no information from the consignee about the completion of the operations of disposal or further use as required by the authorization.

Title IV: Import of Waste Into the Community

Article 11

1. All imports of waste covered by Annex III (unless they do not possess any of the characteristics contained in Annex V), and waste covered by Annex IV, from a State that is not party to the Basle Convention shall be prohibited.

2. Without prejudice to Articles 13 and 14(2), all imports of waste shall be prohibited if they have not been authorized according to paragraph 5.

3. The competent authority of destination shall prohibit the bringing of waste into its area of jurisdiction if it has reason to believe that the waste will not be managed in an environmentally sound manner.

4. Notification shall be made to the competent authority of destination by means of the standard consignment note referred to in Article 3(3) with a copy sent to the consignee of the waste and to the competent authorities of transit. The consignment note shall be issued by the competent authority of destination and printed and completed in an official Community language indicated by the competent authority of destination.

5. The competent authority of destination shall at once send the notifier a written acknowledgement of the notification. It shall, within three months, authorize the shipment with or without reservations, refuse permission for the shipment, or request additional information. Any refusal or reservations shall be justified. It shall send a certified copy of the final answer to the competent authorities concerned, to the customs office of entry into the Community, and to the consignee.

6. The competent authority of destination and, if applicable, the competent authority or authorities of transit in the Community shall have 20 days following notification to lay down, if appropriate, conditions in respect of the transport of the waste. These conditions, which must be conveyed to the notifier, with copies sent to the competent authorities concerned, may not be more stringent than those laid down in respect of similar shipments occurring wholly within the jurisdiction of the competent authority in question.

7. The provisions of Article 6(1), (2), and (3) shall apply mutatis mutandis.

8. Within 15 days after receipt of the waste, the consignee shall send a copy of the duly completed consignment note to the notifier and to the competent authorities concerned.

9. Within 60 days after entry of the waste into the Community, the consignee shall inform the notifier and the competent authorities concerned about the completion of the disposal or further-use operations in accordance with the terms of the authorization.

Title V: Transit of Waste Through the Community for Disposal or Further Use Outside the Community

Article 12

1. The notification shall be sent by means of the standard consignment note referred to in Article 3(3) to the last competent authority of transit within the Community, with a copy sent to the consignee, to the other competent authorities concerned, and to the customs offices of entry into and departure from the Community.

2. The last competent authority of transit within the Community shall promptly inform the notifier of receipt of the notification. The other competent authorities in the Community shall convey their reactions to the last competent authority of transit in the Community, which shall then respond in writing to the notifier within 60 days, consenting to the shipment with or without reservations, withholding permission to proceed with the shipment, or requesting additional information. Any

refusal or reservations shall be justified. It shall send a certified copy of its response both to the other competent authorities concerned and to the customs offices of entry into and departure from the Community.

3. Without prejudice to Articles 13 and 14(2), the shipment shall be admitted into the Community only if the notifier:

- has received the written consent of the last competent authority of transit, or
- has received no reply within 60 days following receipt of the acknowledgement of receipt.

4. The competent authorities of transit within the Community shall have 20 days following notification to lay down, if appropriate, any conditions attached to the transport of the waste. These conditions, which must be conveyed to the notifier, with copies sent to the competent authorities concerned, may not be more stringent than those laid down in respect of similar shipments occurring wholly within the jurisdiction of the competent authority in question.

5. The consignment note shall be issued by the last competent authority of transit within the Community. It shall be printed and drawn up in English or French.

6. The provisions of Article 6(1), (2), and (3) shall apply mutatis mutandis. A specimen of the consignment note shall be supplied by the carrier to the customs office of departure when the waste leaves the Community.

7. As soon as the waste has left the Community, the customs office of departure shall send a copy of the consignment note to the last competent authority of transit within the Community. Furthermore, at the latest six weeks after the waste has left the Community, the notifier shall declare or certify to that competent authority that it has arrived at its intended destination.

Title VI: Provisions Common to Titles II, III, IV, and V

Article 13

Where a shipment of waste to which the competent authorities concerned have consented cannot be completed in accordance with the terms of the contract, the competent authority of dispatch shall ensure that the notifier returns the waste to its area of jurisdiction, unless the waste can be disposed of in an alternative and environmentally sound manner, within 90 days of the competent authority of dispatch being informed. Where disposal entails the shipment of waste to the area of a competent authority other than that of dispatch, a further notification shall be made. No Member State of dispatch or Member State of transit shall oppose the return of this waste.

Article 14

1. Any shipment of waste conducted:

a. without notification of all competent authorities concerned pursuant to the provisions of this Regulation; or

b. without the consent of the competent authority concerned pursuant to the provisions of this Regulation; or

c. with consent obtained from the competent authorities concerned through falsification, misrepresentation, or fraud; or

d. that is not substantially as specified in the consignment note; or

e. that results in deliberate disposal in contravention of Community or international rules; or

f. contrary to Article 9,

shall be deemed to be illegal traffic.

2. If this illegal traffic is the result of conduct on the part of the notifier of the waste, the competent authority of dispatch shall ensure that the waste in question is:

a. taken back by the notifier or, if necessary, by itself into its area of jurisdiction; or, if impracticable

b. otherwise disposed of in an environmentally sound manner

within 30 days from the time when it was informed of the illegal traffic or within such other period of time as may be agreed by the competent authorities concerned. To this end they shall not object to the return of the waste to the area of jurisdiction of the competent authority of dispatch.

3. If this illegal traffic is the result of conduct on the part of the consignee, the competent authority of destination shall ensure that the waste in question is disposed of in an environmentally sound manner by the consignee or, if necessary, by itself within 30 days from the time it was informed of the illegal traffic or within any such other period of time as may be agreed by the competent authorities concerned. To this end they shall cooperate, as necessary, in the disposal of the waste in an environmentally sound manner.

4. Where responsibility for the illegal traffic cannot be imputed to the notifier, or to the consignee, the competent authorities shall ensure, through cooperation, that the waste in question is disposed of in an environmentally sound manner.

5. Member States shall prohibit and severely penalize illegal traffic.

Article 15

1. All shipments of waste covered by Titles II (except Article 7), III, IV, and V shall be subject to a provision of security. This shall be lodged:

- by the notifier with the administrative office designated by the competent authority of departure where waste is being moved within the Community; the surety shall be released when the waste has reached its destination;
- by the notifier with the customs office of departure where waste is being exported out of the Community;

the surety shall be returned to him when the waste leaves the Community;
- by the consignee at the customs office of entry into the Community where waste is being imported into the Community; the surety shall be returned to him when the waste has reached its destination;
- by the notifier at the customs office of entry into the Community where waste is in transit through the Community; the surety shall be returned to him when the waste leaves the Community.

2. Proof that the waste has reached its destination or left the Community shall be furnished by means of control copy T5 drawn up under Commission Regulation (EEC) No 2823/87.

3. The amount of the security, exceptions to release and the procedure for providing securities shall be determined in accordance with Article 31.

Article 16

The provisions of Titles II, III, IV, and V shall apply without prejudice to any bilateral, multilateral, or regional agreements or arrangements which the Community, or the Community and Member States, may deem fit to conclude pursuant to Article 11 of the Basle Convention.

Article 17

1. Under Titles III, IV, and V, the notifier may use a general notification procedure where waste having essentially the same physical and chemical characteristics is shipped regularly to the same consignee via the areas of jurisdiction of the same competent authorities.

2. Article 5(2), (3), and (4) shall apply mutatis mutandis.

Article 18

Member States shall provide that an appeals procedure before the tribunals shall be open at least to the notifier against the following decisions of the competent authorities:

a. Any refusal by the competent authority entitled to issue the authorization to authorize the shipment within the intended period, pursuant to Articles 4(1), 10(2), 11(5), and 12(2);

b. Any reservations or conditions linked to the authorization referred to under a.;

c. Any objections raised by the competent authorities in the Community against the shipment as intended by the notification, pursuant to Articles 4(3) and (4), and 7(1)(c);

d. Any transport conditions pursuant to Articles 4(5), 10(4), 11(6), and 12(4).

Article 19

In compliance with the provisions of this Regulation, Member States shall take the measures needed to ensure the supervision and control of waste shipments.

Title VII: Other Provisions

Article 20

1. All shipments of waste shall meet the following conditions:

a. The waste must be suitably packaged;

b. The containers must bear appropriate labels indicating, in addition to the nature, composition, and quantity of the waste, the telephone number(s) of the person(s) from whom instructions or advice may be obtained at all times during shipment;

c. Instructions for action in the event of danger or accident must accompany the waste;

d. The labels and instructions referred to in b. and c. must be in the language of the States concerned.

2. The conditions referred to in paragraph 1 shall be deemed to be fulfilled where the shipment complies with the relevant provisions of Community law and of the international transport conventions, cited in Annex VI, to which the Member State concerned is a party, where those conventions cover the waste to which this Regulation refers.

Article 21

1. The cost of implementing the notification and supervision procedure, including the necessary analyses and inspections, shall be chargeable to the notifier by the Member State concerned.

2. Costs arising from the return of waste or from disposal in another form pursuant to Articles 13 and 14 (2) shall be charged to the notifier by the Member State concerned.

3. Costs arising from disposal, pursuant to Article 14 (3), shall be charged to the consignee by the Member State concerned.

Article 22

1. Without prejudice to Community and national provisions concerning civil liability and irrespective of the point of disposal of the waste, the producer of that waste shall take all necessary steps to dispose of the waste in such a way as to protect the quality of the environment in accordance with Directive 75/442/EEC, including the specific provisions referred to in Article 2(2)(f) thereof and in this Regulation.

2. Member States shall take all necessary steps to ensure that the obligations laid down in paragraph 1 are carried out.

Article 23

All documents sent to or by the competent authorities shall be kept for at least three years.

Article 24

Member States shall designate the competent authority or authorities for the implementation of this Regulation in a specific area. A single competent authority of transit shall be designated by each Member State.

Article 25

1. Member States and the Commission shall each designate a correspondent responsible for informing or advising persons or undertakings who or which make enquiries.

2. The Commission shall periodically hold a meeting of its correspondents to examine with them the problems raised by the implementation of this Regulation.

3. The Commission correspondent shall forward to the correspondents of the Member States any questions put to him which fall within their competence, and vice versa.

Article 26

1. Member States shall notify the Commission not later than 1 October 1991 of the name(s), address(es), and telephone and telex/telefax numbers of the competent authorities and of the correspondents and the installations, establishments or undertakings holding an authorization within the meaning of the fourth indent of Article 3(4), together with the seals of the competent authorities.

Member States shall notify the Commission regularly of any changes in this information.

2. The Commission shall send the information without delay to the other Member States and to the Secretariat of the Basle Convention.

Article 27

1. In consultation with the Commission, Member States shall designate customs offices of entry into and departure from the Community for shipments of waste entering and leaving the Community.

2. No shipment of waste shall be allowed to use any other frontier crossing points for entering or leaving the Community other than the customs offices designated under paragraph 1.

Article 28

Within the framework of the Basle Convention, the Member States, in close liaison with the Commission, shall cooperate with the other interested parties inter alia via the exchange of information, the promotion of new environmentally sound technologies, and the development of appropriate codes of practice.

Article 29

The Commission and Member States shall cooperate in discharging their obligations regarding the supply of information under Article 13 of the Basle Convention.

Article 30

1. Every year, and for the first time on 1 March 1993, Member States shall supply the Commission with a report on the implementation of this Regulation and on the situation with regard to the shipments of waste covered by this Regulation.

2. The reports shall include the following information in particular:

- shipments of waste arising from major accidents within the meaning of Article 1 of Council Directive 82/501/EEC of 24 June 1982 on the major accident hazards of certain industrial activities;
- significant irregularities in shipments of waste covered by this Regulation which have involved or may yet involve serious hazards for man or the environment;
- the quantity and type of waste which has entered the area of jurisdiction of the competent authorities for disposal and the quantity and type of waste produced in the area of jurisdiction of the competent authorities and subsequently dispatched to another competent authority, either definitively or before disposal at sea.

3. On the basis of these reports, the Commission shall prepare a consolidated report every year, which it shall address to the European Parliament, the Council, and the Economic and Social Committee.

Article 31

The list provided for in Article 2(2)(d), the standard consignment note and the standard document referred to respectively in Articles 3(3) and 7, and the necessary general provisions and instructions relating to the note and form and the provisions necessary for applying Article 15(3) shall be drawn up by the Commission before 1 January 1992, in accordance with the procedure laid down in Article 32. The same procedure shall apply to the amendments needed to adapt these documents and the Annexes to this Regulation to scientific and technical progress, due account being taken of the combined nomenclature.

Article 32

The Commission shall be assisted by a committee composed of the representatives of the Member States and chaired by the representative of the Commission.

The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion on the draft within a time limit which the chairman may set as required by the urgency of the matter. The opinion shall be delivered by the majority laid down in Article 148(2) of the Treaty in the case of decisions which the Council is required to adopt on a

proposal from the Commission. The votes of the representatives of the Member States within the committee shall be weighted in the manner set out in that Article. The chairman shall not vote.

The Commission shall adopt measures which shall apply immediately. However, if these measures are not in accordance with the opinion of the committee, they shall be communicated by the Commission to the Council forthwith. In that event, the Commission may defer implementation of the measures adopted for a period of not more than one month from the date of said communication.

The Council, acting by a qualified majority, may take a different decision within the time limit referred to in the previous paragraph.

Article 33

Directive 84/631/EEC is hereby repealed with effect from 1 January 1992. However, it shall continue to apply to shipments for which notification has been sent to the competent authority before that date.

Article 34

1. This Regulation shall enter into force on the 40th day following that of its publication in the OFFICIAL JOURNAL OF THE EUROPEAN COMMUNITIES.

2. It shall apply from 1 January 1992 with the exception of Articles 2, 9(1) and (2), 24 to 29, 31, and 32 which shall apply from its date of entry into force and without prejudice to the second sentence of Article 33.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

ANNEX I

Categories of Waste	
Q1	Production or consumption residues not otherwise specified below
Q2	Off-specification products
Q3	Time-expired products
Q4	Substances spilled, lost, or having undergone other mishap including any materials, equipment, etc., contaminated as a result of the mishap
Q5	Substances contaminated or soiled as a result of planned actions (e.g., residues from cleaning operations, packaging materials, containers, etc.)
Q6	Unusable components (e.g., discarded batteries, exhausted catalytic converters, etc.)
Q7	Substances which no longer perform satisfactorily (e.g., contaminated acids, contaminated solvents, spent tempering salts, etc.)
Q8	Residues of industrial processes (e.g., slags, still bottoms, etc.)
Q9	Residues from pollution abatement processes (e.g., scrubber sludges, air-filter dusts, spent filters, etc.)
Q10	Machining/forming residues (e.g., lathe or milling swarf, etc.)
Q11	Residues from raw-materials extraction and processing (e.g., mining residues, oil field slops, etc.)
Q12	Adulterated products (e.g., oils contaminated with PCBs, etc.)
Q13	Any materials, substances, or products whose use has been banned by law
Q14	Products for which the holder has no further use (e.g., agricultural, household, office, retailing and workshop discards, etc.)
Q15	Contaminated materials, substances, or products resulting from land reclamation
Q16	Any materials, substances, or products which the holder wishes to dispose of, or is required to dispose of, and which are not contaminated in the above categories

ANNEX II

A. Disposal Operations	
D1	Tipping above or underground (e.g., landfill, etc.)
D2	Land treatment (e.g., biodegradation of liquid effluents or sludges in soils, etc.)
D3	Deep injection (e.g., injection of pumpable effluents into wells, salt domes, or naturally occurring repositories, etc.)
D4	Surface impoundment (e.g., dumping of liquid effluents or sludges into pits, ponds or lagoons, etc.)
D5	Specially engineered landfill (e.g., discharge into lined discrete cells which are capped and isolated from one another and the environment, etc.)
D6	Release of solid waste into a water body except seas/oceans
D7	Release into seas/oceans including sea-bed insertion

A. Disposal Operations (Continued)	
D8	Biological treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are disposed of by means of any of the operations listed in Annex II.A.
D9	Physical-chemical treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are disposed of by means of any of the operations listed in Annex II.A. (e.g., evaporation, drying, calcination, etc.)
D10	Incineration on land
D11	Incineration at sea
D12	Permanent storage (e.g., of containers in a mine, etc.)
D13	Blending or mixing prior to any of the operations in Annex II.A.
D14	Repackaging prior to any of the operations in Annex II.A.
D15	Storage pending any of the operations in Annex II.A.

NB: Annex II.A. is intended to list disposal operations such as occur in practice. These operations may or may not be acceptable from the point of view of environmental protection.

B. Operations Which May Lead to Recovery	
R1	Use principally as a fuel or other means of generating energy
R2	Solvent reclamation/regeneration
R3	Recycling/reclamation of organic substances which are not used as solvents
R4	Recycling/reclamation of metals and metal compounds
R5	Recycling/reclamation of other inorganic substances
R6	Regeneration of acids or bases
R7	Recovery of components used for pollution abatement
R8	Recovery of components from catalytic converters
R9	Refining or other reuses of oil
R10	Spreading on land resulting in benefit to agriculture or ecological improvement, including composting and other biological conversion processes
R11	Uses of residues obtained from any of the operations numbered R1-R10
R12	Exchange of wastes for submission to any of the operations numbered R1-R11
R13	Accumulation of material intended for submission to any operation in Annex II.B.

NB: Annex II.B. is intended to list the processes and methods intended to extract and/or to utilize secondary materials. These processes and methods may or may not be acceptable from the point of view of environmental protection.

ANNEX III

Categories of Hazardous Wastes Requiring Supervision	
	Waste streams
Y1	Clinical wastes from medical care in hospitals, medical centres, and clinics
Y2	Wastes from the production and preparation of pharmaceutical products
Y3	Waste pharmaceuticals, drugs, and medicines
Y4	Wastes from the production, formulation, and use of biocides and plant health care products
Y5	Wastes from the manufacture, formulation, and use of wood preserving agents
Y6	Wastes from the production, formulation, and use of organic solvents
Y7	Wastes from heat treatment and tempering operations involving cyanides
Y8	Waste mineral oils unfit for their originally intended use
Y9	Waste oil/water, hydrocarbon/water mixtures and emulsions
Y10	Waste substances and articles containing or contaminated with polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)
Y11	Waste tarry residues arising from refining, distillation, and any pyrolytic treatment
Y12	Wastes from the production, formulation, and use of inks, dyes, pigments, paints, lacquers, varnish

Categories of Hazardous Wastes Requiring Supervision (Continued)	
Y13	Wastes from the production, formulation, and use of resins, latex plasticizers, glues/adhesives
Y14	Waste chemical substances arising from research and development or teaching activities which are not identified and/or are new and whose effects on man and/or the environment are not known
Y15	Wastes of a potentially explosive nature not subject to other legislation
Y16	Wastes from the production, formulation, and use of photographic chemicals and processing materials
Y17	Wastes resulting from the surface treatment of metals and plastics
Y18	Residues arising from industrial waste disposal operations
	Wastes containing
Y19	Carbonyl metals
Y20	Beryllium; beryllium compounds
Y21	Hexavalent chromium compounds
Y22	Copper compounds
Y23	Zinc compounds
Y24	Arsenic; arsenic compounds
Y25	Selenium; selenium compounds
Y26	Cadmium; cadmium compounds
Y27	Antimony; antimony compounds
Y28	Tellurium; tellurium compounds
Y29	Mercury; mercury compounds
Y30	Thallium; thallium compounds
Y31	Lead; lead compounds
Y32	Inorganic fluorine compounds excluding calcium fluoride
Y33	Inorganic cyanides
Y34	Acidic solutions or acids in solid form
Y35	Basic solutions or bases in solid form
Y36	Asbestos (dust and fibres)
Y37	Organic phosphorous compounds
Y38	Organic cyanides
Y39	Phenols; phenol compounds including chlorophenols
Y40	Ethers
Y41	Halogenated organic solvents
Y42	Organic solvents excluding halogenated solvents
Y43	Any congener of polychlorinated dibenzo-furan
Y44	Any congener of polychrolinated dibenzo-p-dioxin
Y45	Organohalogen compounds other than the substances referred to in this Annex (e.g.: Y39, Y41, Y42, Y43, Y44)

ANNEX IV

Categories of Waste Requiring Special Consideration	
Y46	Wastes collected from households
Y47	Residues arising from the incineration of household wastes

[passages omitted]

European Automobile Industry Combats Pollution

91WN0309A Paris LES ECHOS in French
25 Feb 91 p 12

[Article by Philippe Escande: "Auto Makers Play Green Card"]

[Text] With a series of announcements and voluntary commitments, builders are trying to refurbish the image of an industry often accused of dragging its feet on environmental issues...

In Germany next month Renault will start marketing diesel R19's and Clios that comply with European antipollution standards which will not go into effect until 1996. Fiat has announced that starting next year its new models in Italy will be equipped with catalytic converters, a year before European requirements enter in force. The Italian firm promises to invest 11.8 billion [currency not specified] in "ecological" innovations in the next three years.

These initiatives have come in the wake of others recently launched by Renault, PSA [Peugeot] and BMW in the domain of automobile recycling. Often accused of reacting to regulations instead of getting out in front of them, especially in southern Europe, the auto makers are now launching a major environmental campaign. Last week, for example, Renault held a public seminar at its usually inaccessible Lardy test center south of Paris. Facing a serious market slump and increasing public sensitivity to the consequences of automotive pollution, European builders have decided to focus on two key points: air pollution and vehicle disposal.

There are no more complaints about the catalytic converter, which—though initially denigrated by many—has proven to be effective. "A catalytic converter will last about 80,000 km, and the only thing that can destroy it is lead in the gasoline," says Yves Boccardoro, head of the engine and antipollution testing division at Renault. "It may be true that a misfiring ignition system can shorten its life, but in general it is very sturdy."

Rapid progress is being made with respect to diesel-powered vehicles: The new converters, paired with cleaner engines, already exceed standards the Community will promulgate five years from now for particle and nitrogen oxide emissions.

At the same time, builders are also thinking about alternative and cleaner energy sources: electric-powered vehicles, fuel cells, natural gas and hydrogen. Pollution and traffic jams in the big cities and progress in battery miniaturization are behind the renewed interest in electric-powered vehicles.

PSA and Fiat are already quietly marketing such electric vehicles adapted from the Fiat Panda, Peugeot 205 and Peugeot J5 van. Renault next year will introduce Express minivans and Master electric trucks.

Then there is the "new look" two-stroke engine with electronic steering, which looks increasingly like a viable and much less polluting alternative to the traditional four-stroke engine. The engine has now been released from Renault's research department to go into the development phase and preparation for mass production. Work on the engine developed by PSA and IFP [French Petroleum Institute] has similarly progressed.

End of Junkyards?

But there is still the problem of scrapped vehicles. Builders must find a way to manage the problem of recycling automobiles retired from circulation—2 million [currency not specified] a year in France. In Germany, the minister of environment is considering new regulatory measures to deal with this problem. BMW and Mercedes are already showing vehicles that contain a large number of recyclable plastics (material which obviously poses more problems to scrap dealers). In Italy, Fiat is working with the minister of environment to create special recycling centers.

In France, Renault is experimenting at Flins with a recycling plant that disassembles five vehicles per day. In all, it will invest 1 billion francs [Fr] in 1991 in environmental research and development, compared to Fr750 million in 1990. "The environment is coming of age at Renault," explains Paul Percie du Sert, former marketing manager and now general representative for environmental policy. All the builders are on the bandwagon now, convinced it is the only way to avoid widespread and unmanageable product rejection in the next 10 years.

BELGIUM

Environmental Research Project Launched

91AN0162A Zellik TECHNIVISIE in Dutch 21 Nov 90 p 4

[Text] On 22 October, Mr. Kelchtermans, the Flemish Community Minister of them Environment, Nature Conservation, and Land Planning, launched the Flemish Incentive Program for Environmental Technology (VLIM). Through this program, the Flemish authorities wish to stimulate, coordinate, and control research efforts in the field of environmental technology. The objective is to develop and implement knowledge available in Flanders according to policy guidelines. The Flemish authorities have created a system of subsidies for this purpose. The financial means will be taken from the Fund for the Prevention and Depollution of the Environment and Nature (the so-called MINA fund).

The projects will be subdivided into four types: The first three types correspond to different stages of the innovative development process—feasibility studies, research projects, and demonstration projects. The fourth type deals with more general social aspects. The projects may deal with waste water and drinking water, soil and air pollution, smell and sound nuisance, and the social implications of environmental technology.

The VLIM program is aimed at the research community as well as industry and will continue until the end of 1994.

DENMARK

Experimental Biogas Plant Operational

91AN0178X Stockholm NEW SCANDINAVIAN TECHNOLOGY in English No 4, 90 p 7

[Article: "Rubbish Turned Into Biogas"]

[Excerpts] In Hillerod, Denmark, an interesting facility for thermophilic anaerobic compostion has been taken into use. The experimental plant was developed by a Danish engineering company, I. Kruger AS, in cooperation with the power company IFV-energi I/S and the municipality of Hillerod.

This is a pilot plant with capacity to treat some 1,000 kg/day of source-sorted waste. The optimal process conditions are now being investigated in a series of trials in Hillerod.

While aerobic compostion of the organic portion of rubbish is a method that has been used for many years, there are very few facilities in the world that have tested anaerobic technology.

The anaerobic technology is interesting in that the process forms gas containing 50-60 percent methane. The energy content of this biogas can help to achieve good operating economy for the plant.

In this project, Danish technology for anaerobic composting has been developed for the purpose of generating source material as a basis for future full-scale facilities. The project is expected to cost some 15 million Danish kroner and is being backed by the Danish Environment Board insofar as rubbish collection is concerned. [passage omitted]

The biogas plant in Hillerod consists of four sections, one for pretreatment, one for processing, one gas system and one air treatment section.

The pretreatment section features a reception station for organic waste, a sack cutter, a sorting and homogenization drum, and a magnetic separator.

The process facility consists of a silo, a biogas reactor, a biofilter, a press for degassed material and a collection tank for reject water.

The gas system features a gas container with a gas motor and generator unit.

The air treatment plant consists of composite filters for elimination of foul odours.

The biogas facility is also furnished with comprehensive measuring equipment and the results of the various measurements are processed electronically every day. The entire plant is automated, so that in normal daily operation manual intervention is necessary for only a few tasks.

Several different processes are being tested in the facility in order to determine the most optimal process conditions.

According to the time schedule, the process experiments will continue throughout 1990 so that evaluation and establishment of a full-scale facility will be able to take place as from 1991.

FRANCE

Rhone-Poulenc Running Out of Space for Radioactive Waste

91WN0301A Paris LIBERATION in French 26 Feb 91 p 32

[Article by Helene Crie: "La Rochelle: Radioactive Waste Looking for a Home"]

[Text] Rhone-Poulenc is at a loss where to put its waste, which the already overloaded Manche Storage Center declines to take. So it would like to store some radium on its own premises, in an urban area. To get around the prefect's refusal, the company is trying to trade in its authorization to store thorium—another radioactive substance—for radium....

Radioactive waste but a stone's throw from HLM [low-cost housing projects] in La Rochelle? Rhone-Poulenc denies it. At all events, the chemical company is up against the wall: Unless it finds an answer quickly—perhaps bending regulations in the process—its La Rochelle plant will suffocate in radioactive waste. The specialized waste disposal site that used to accept it doesn't want to take any more, and the prefect of Charente-Maritime has refused to authorize temporary on-site storage while another solution is being sought. Why? "The hazards created by the creation of such a storage site in an urban area." The waste is not polluting anything at the moment. Over the longer term, its presence could prove dangerous. Theoretically, the plant has had more waste on hand since mid-January than it is authorized to store. But plant manager Roland Goetz gave assurances yesterday that "nothing illegal is going on at the site."

Where will this universally unwanted radioactive waste be taken? The Manche Storage Center operated by ANDRA (National Radioactive Waste Agency) accepted it until late 1990 but has now closed its doors. On 23 November, Mayor Michel Crepeau wrote to the minister of environmental affairs: "Storage [of radioactive waste]—even on a temporary basis, even buttressed by all sorts of technical assurances—on the premises of an industrial facility in the middle of a densely populated area would be viewed by the population as an intolerable provocation... Some people are just waiting to exploit something like this to foment a political uprising."

Since 1947, Rhone-Poulenc's La Rochelle plant has been extracting the "rare earths" contained in two crude minerals—monazite and bastnasite—imported from Australia, Africa, China and Thailand. The purpose: to produce, from these highly refined ores, components used in the manufacture of color televisions, magnetic tape, synthetic diamonds, ceramics, and catalytic converters. An advanced technology, one in which France is virtually unrivaled. Unfortunately, the residues of the production process include two unusable radioactive compounds, thorium and radium.

The first has already generated much concern among chemists, local officials and ecologists. Until 1985, radioactive waste from thorium processing was dumped directly into the sea. Then the company began compacting most of the thorium residue and sending it to the Manche center. But radioactive liquid effluents continue to be dumped into La Rochelle Bay, ostensibly only to the extent authorized by prefectural authorities. The shore at Port-Neuf, a promenade much beloved by the citizens of La Rochelle, is radioactive: But how can such a vast area be decontaminated? (See LIBERATION of 20 March 1988.)

Waste from Rhone-Poulenc also contains radium, an extremely dangerous radioactive element—not in concentrations greater than authorized by prefectural, but in larger and larger amounts over the last 3 years. Monazite processing has increased, owing to the fact the mineral also contains cerium, indispensable to the manufacture of automotive catalytic converters required under new European antipollution regulations. Cerium extraction produces "radiferous wastes": thorium, uranium, and most of all radium.

For 20 years ANDRA accepted Rhone-Poulenc's waste, the volume of which has grown from 400 cubic meters per year in the 1970's to 2,000 in 1990. But the Manche center is overloaded, and it will be two years before the new radioactive waste storage center at Soulaines (Aube) is open. ANDRA informed Rhone-Poulenc in April 1990 that its waste was unwanted at Soulaines. Yves Kaluzny of the SCSIN [Central Safety Service of Nuclear Installations], the tutelary agency that authorizes storage at ANDRA, explained the decision this way yesterday: "Radiferous waste emits radon, a radioactive gas impossible to contain in normal concrete blocks. And the pulp from the chemical products in which the radioactive elements are embedded dissolves the concrete, jeopardizing the security of confinement of the other waste." To meet safety standards at Soulaines, Rhone-Poulenc is believed to be considering improvements in its "packaging," which could be very expensive.

The company would prefer to try something else. The waste contains tiny amounts of uranium. Why not turn the pulp over to COGEMA (General Nuclear Materials Company), which produces fuel for electric generating stations? COGEMA could then extract the uranium and worry about disposing of the remaining waste. COGEMA conducted a preliminary study at its facility in Bessines (Limousin) and rejected the idea: "Considering the very low current price of uranium," explains Yves Coupin, who handles COGEMA's relations with Rhone-Poulenc, "the process would not be profitable."

In any case, that solution would require Rhone-Poulenc to hold onto its waste for at least two more years while the radioactivity level decreases. Accordingly, the company requested storage authorization from the prefect, and on 31 October it got an answer: no.

By late November, Rhone-Poulenc was really in a panic: Reprocessing was out of the question, the Manche center wanted no more waste, and storage on the facility's premises was prohibited. At one point, consideration was even given to the extreme solution of stopping monazite production altogether. But the ore producers and the company's clients threatened to take legal action.

Under pressure from the Ministry of Industry, COGEMA is continuing its efforts to rescue the company: Studies are under way to determine whether the waste from Rhone-Poulenc could be mixed with inert debris from the uranium mines. One possible site: the Ecarpiere mine in Vendee, where mining operations are soon to be discontinued. "Mixing the Rhone-Poulenc residues with our own would not result in a significant increase in the radioactivity level," Coupin maintains. The study will not be completed for several more months. If that solution is picked, a public hearing would have to be held. How will the people in the vicinity react?

Wait, wait... Even while the idea is being studied, the waste continues to build up. Rhone-Poulenc plays its last card: though almost no thorium is produced at the plant anymore, the company has an authorization to store it. Why not convert thorium curies into radium curies, taking into account the differential radioactivity of the two elements? "It looks possible, assuming it's temporary," confirms Philippe Vesseron of the Nuclear Safety Protection Institute (IPSN), a division of the Atomic Energy Commission which carried out the study requested by the Ministry of Environment. The authorities are as loath as anyone else to be stuck with 2,000 tons of radioactive waste.

Sitting today on the desk of the prefect of Charente-Maritime is a new request for on-site storage, reformulated on the basis of this brilliant conjuring trick. When the manager of the La Rochelle facility maintains it is not violating the law, he may be telling the truth. Especially if ANDRA, anxious not to touch off a scandal, continues to allow the occasional package of waste to be stored at the Manche center.

Rhone-Poulenc is going to have to fight hard to justify its Elysian advertising slogan, "Welcome to a better world."

Plastic Bottle Recycling Envisaged

91WN0301B Paris LIBERATION in French 2-3 Mar 91 p 14

[Article by Sylvaine Villeneuve: "Guidelines for Recycling Disposable Water Bottles"]

[Excerpt] Is something going to be done soon about the millions of empty plastic bottles piling up? Mineral water producers, sensitive to the threat to their public image, are now considering ways of recycling that mountain of PVC [polyvinyl chloride]....

Is the mineral water industry going to take a drubbing because of the plastic containers that made it so successful in the 1970's? That was when a few grams of PVC replaced glass, making water bottles light, transportable, unbreakable and disposable. But in a few more months

the trash bin will no longer be their final resting place. Brice Lalonde, the minister for environment, recently announced that producers of plastic containers would soon be forced to take back their waste products or assume financial responsibility for a recycling system. On the model of provisions in Germany's new legislation.

Inasmuch as Frenchmen consume 4 billion liters of bottled water every year, the water vendors—who also make the bottles—will have to take back literally mountains of plastic, unless they come up with a better solution. Mineral water is a very special product, in that the raw material—water—is free. Since the packaging accounts for 25 percent of the purchase price, the overall cost of the product could increase significantly if the vendor must assume financial responsibility for the plastic waste.

So Antoine Riboud, who as head of BSN is the man responsible for Evian and Badoit, has agreed to consider means of recycling the plastic bottles. He is to submit his proposals to the authorities by the end of the month.

The bottlers are open to any ideas. At the technical level, Perrier, Vittel, and Evian have joined with Atochem, Shell Chemicals, and Solvay to create, in the next few months, a consortium specializing in the collection and processing of PVC bottles and the marketing of the recycled material. This group, Gecom Recyclage PVC, will offer to buy back bottles collected by the municipalities for 1,350 francs [Fr] per ton. At 35 grams per bottle, a ton is the equivalent of 28,000 bottles. The goal is to recycle 5,000 tons this year, or 140 million empty PVC bottles—and three times as much by 1993. Major investments will be required to create the collection and recycling systems. Ultimately, at least according to one water vendor, "the added costs will be borne by the consumer." The price of mineral water will probably thus increase by 10 to 20 centimes per bottle.

With brands like Evian, Vittel, Volvic annd Contrexeville selling for Fr2.40-2.80 per bottle (in the supermarkets), there is a real possibility such a price increase will affect sales, perhaps causing some consumers to shift to less prestigious (and cheaper) brands, such as the regional mineral waters that already account for 35 percent of the bottled water market. [passage omitted]

GERMANY

Environmental Research Programs, Funding Reviewed

91MI0142X Bonn TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN in German 10 Dec 90 pp 21-26

[German government report on global environmental change]

[Passage omitted providing an overview of the causes and results of environmental change and listing relevant international programs]

III Work on Global Environmental Change in Germany

1. Project Funding

National work is presented here according to the major topics of research into global environmental change in the atmosphere, land, the oceans, and the cryosphere. These areas interact in many ways, so the research projects have been classified by their objectives. For this reason, for example, models representing the spread of SO_2 in the "atmosphere" may well be listed under research into damage to forests under "land." The "atmosphere" heading is also divided into the main research areas of "climate" and "ozone depletion."

a) Climate Research

The BMFT [Federal Ministry of Research and Technology] "Greenhouse Effect" subsidy program sets out to predict global climate change resulting from changing concentrations of climate-relevant trace substances in the foreseeable future and to deduce the consequent distribution of the major climatic parameters in time and space on a regional scale. The German Climate Computing Center, which uses high-performance computers to simulate climatic processes and draw up climatic models, should be mentioned in this connection. Special importance also attaches to climatic diagnosis, as natural climatic variations must be distinguished from anthropogenic modifications. This work will also involve special studies of the frequency and extent of climatic anomalies.

The main DFG [German Research Association] programs on the atmospheric sciences provide important contributions for climatic modeling, as does the development of physical methods for remote atmospheric and hydrospheric sensing, which is essential for planning global monitoring models.

The BMU [Federal Ministry of the Environment, Nature Conservation, and Reactor Safety] is having scenarios drawn up on the development of emissions and concentrations of climate-relevant gases and the greenhouse potentials measured in materials that have not yet been analyzed in this respect.

The BMV [Federal Ministry of Transport] has applied BMFT subsidies to set up the World Precipitation Climatology Center in the FRG Weather Service (DWD), as part of the World Climate Research Program. The project sets out to find methods for supplying comprehensive worldwide precipitation information. Once the project is completed, the routine operation of the center will be taken over by the DWD, which will continue collecting and supplying worldwide precipitation data. The DWD also supplies sets of climate data going back over many years from its observation program, which may contribute to the detection of any climate changes in Germany.

The worldwide water drainage data base (Global Run Off Data Center) is housed in the FRG Hydrography Institute. This data is also collected and distributed worldwide.

b) Ozone Research

The BMFT subsidizes research projects within a coordinated integrated research community that aim to:

- Determine the type and extent of the change in ozone concentration;
- Establish the causes of this change, and
- Provide a basis for reliable predictions as to future developments.

In order to achieve these aims, coordinated joint efforts are being undertaken in the following areas: field measurements, laboratory tests, further development of multidimensional, coupled chemical and dynamic models, and diagnosis of the available meteorological data.

Measurements of ozone in the stratosphere carried out by the DWD are also used here.

c) Land Ecosystems

The BMFT's ecological research aims to achieve a better understanding of the various ecosystems and how they interact in the environment and to clarify the specific mechanisms by which they act and regulate one another with a view to developing appropriate recommendations for action and viable technologies for protecting, conserving, or salvaging the ecosystem.

In this sense, ecological research has become ecosystematic and long-term; it:

- Predicts developments in environmental pollution caused by substances and other disrupting elements;
- Detects, investigates, and analyzes the type, cause and extent of environmental pollution and its direct and indirect effects on complex ecological systems such as the atmosphere, the water balance and cycle, the countryside, industrial centers and cities, human beings, animals and plants;
- Studies the ability of ecological systems to withstand pollution and the limits of this ability;
- Develops various models of ecological intervention, taking legal and economic criteria into account;
- Draws up the scientific principles for a targeted review of administrative measures to ensure their environmental compatibility.

The DFG coordinates its research subsidies closely with the BMFT, and they make a significant contribution to achieving the objectives set out above. DFG funding focuses mainly on the earth sciences.

The BMU is playing a concrete role in the creation of a network of ecological observation areas as part of UNESCO's: "Man and the Biosphere" program. Apart from the MAB program, the BMU has already started work with the USSR on the ecological observation of ecosystems close to nature. The aim of this work is to use regulation mechanisms that have not been affected by mankind as a reference standard for ecosystems in western Europe that have been modified by mankind.

Grasping the situation, evaluating the dynamics involved, and managing the exploitation of resources already require ecosystem-oriented direction during the research phase if the right weight is to be given to ecological interdependencies. This will also serve to establish an order of priority for projects.

The environmental hazards that have aroused increasing debate recently may also have considerable consequences for the agricultural sector. For this reason, one significant area of the research program funded by the BML [Federal Ministry of Food, Agriculture, and Forestry] on: "Conservation of Natural Living Conditions" is the scientific study of ecosystems. It sets out to achieve a better understanding of the substance and energy cycles in agricultural ecosystems, pollutant inputs and outputs, and the mechanisms whereby other types of environmental pollution work. A cost benefit analysis of dike construction begun in 1988 also covers the effects of possible global climatic changes in so far as they are relevant to analyses of the interactions between technology and the natural world, and for questions of evaluation. The BML currently spends about 9.3 million German marks [DM] on ecosystem research in the fields of agriculture and forestry.

As far as research with a bearing on global environmental change is concerned, the BMZ [Federal Ministry of Economic Cooperation] mainly funds work on tropical rain forests and bioindicators. Practice-oriented studies are decidedly to the fore.

The following research projects with a strong emphasis on basic research are worth mentioning:

- Bioindicators as integral components of environmental monitoring;
- The tropical ecology support program;
- The promotion of tropical rain forest research.

A total of about DM8 million was provided for these projects in 1989. They are all supraregional, sectorial technical cooperation projects.

d) Marine Research

The BMFT's Marine Research and Marine Engineering program pursues the following global change-related goals:

- Consolidating knowledge of the sea, the seabed, and its many interactions with the atmosphere and the coastal regions. This primarily covers studies of marine ecosystems, including both inshore areas and estuaries, deep-sea areas, and the polar seas. Another focus for study is bio- and geochemical cycles in various marine areas of particular relevance for global exchange processes and the changes that take place in them

- Preserving the viability of marine and coastal ecosystems. Studying the effects of global change on the marine habitat has priority here (alongside the hazards caused by mankind). Here too, the indicator

function fulfilled by particularly sensitive groups of organisms will be used to identify global changes.

The Meteor expeditions subsidized by the DFG since 1964 also provide an important contribution to longer-term studies of marine ecosystems.

The BMV acts through the Federal Shipping and Hydrography Authority (BSH) to honor its monitoring obligations under the Oslo, Paris, and Helsinki agreements and European Community guidelines. Both natural parameters (temperature, salt content, oxygen) and anthropogenic factors (pollutants) are monitored in the North and Baltic Seas. One of the research projects is studying changes in the water level over hundreds of years. It involves analyzing water level measurements carried out over long periods on the coasts of Germany. The FRG's participation in GLOSS (Global Sea-Level Observing System) comes under this heading.

Furthermore, merchant ships take temperature measurements as a contribution to the TOGA [Tropical Ocean and Global Atmosphere] and WOCE [World Ocean Circulation Experiment] programs. The data is stored in the Marine Environment Data Base in the German Oceanographic Data Center.

e) Polar Research

Three principal research targets can be identified in the BMFT's polar research program:

- Interactions in the linked ocean-atmosphere-ice system, with special reference to climate-relevant aspects of the exchange of energy, impetus, and material among these components of the "system Earth."
- The geological development of the polar areas. The polar areas and the continent of Antartica occupy a key position for an understanding of the history of the development of the planet Earth. Studying them therefore provides an opportunity to decipher the geological processes of the past, which were peripheral phenomena that helped establish processes relevant to the Earth's climate.
- Marine ecosystems in the polar regions. The relative isolation of these systems provides an opportunity to study the reaction of groups of organisms to natural environmental changes, without the risk of this kind of signal having been obscured by human interference. Furthermore, ecosystems at high altitudes which are often highly receptive, constitute sensitive early indicators of global change.

With the Antartic research funding program set up in 1981, the DFG is making a decisive contribution to studies of the polar regions and their significance for the Earth's climatic system.

f) Complementary Research

Individual federal ministries also complement the research programs on anthropogenic environmental changes by subsidizing research projects that are either essential to an understanding of the natural components of global change, or convert the knowledge gained about human causes into strategies for the ecological exploitation of natural resources.

Working through the BGR [Federal Geoscience and Raw Materials Agency], the MBWi [Federal Ministry of the Economy] makes a significant contribution to understanding which of the changes observed may be attributed to the earth itself. A large amount of information about causes and effects in the past, i.e., when there was no human interference, is expected in the future too, mainly from sediment analysis and paleontology.

Research projects on reducing chlorofluorohydrocarbon emissions are funded under the BMFT's "Halogenated Hydrocarbon Emission Reduction" program with a view to preventing further damage to the protective ozone layer. Alongside industry's own efforts, DM23 million have been allocated to a total of 30 projects in the following important fields of application:

- Solvents and cleaning agents;
- Plastic foam;
- Cooling and conditioning engineering.

In five joint projects, equipment manufacturers, research institutes, and converters are working together on the use of chlorine-free, and largely halogen-free, substitutes and the development of new or modified processes.

Exploiting the "supply" and avoiding "excessive demands" on the economy of nature is a matter of political management, based on the knowledge gained. The BMU sees its task in terms of, among other things, renewable raw materials and ecological balance, for instance in the use of fertilizers and the avoidance of types of agriculture that result in erosion. Detailed research on the following topics will also be stepped up in the future:

- Development of strategies for reducing photo-oxidants;
- Development of strategies for reducing the release of substances into the sea;
- Further development of instruments and implementation aids for the Federal Government's carbon dioxide reduction campaign.

The BMBau [Federal Ministry of Environmental Planning, Building, and Urban Development] approved subsidies totaling DM0.8 million for building research projects in 1989. The topics include energy saving, with a consequent reduction in the greenhouse effect, and the current redrafting of the regulations on heat retention, whose requirements are being upgraded to take account of the power consumption of the low- energy house.

Since the mideighties, the "Urban Ecology and Environment-Compatible Building" section of the BMBau's: "Experimental Residential and Urban Development" program has been subsidizing urban planning and development projects that contribute to research into urban ecology and, consequently, emission reduction. This

program is funding 51 measures for a total of DM27.5 million out of the Federal Government budget.

2. Overview of FRG Project Funding

The following table lists the research projects relevant to global environmental change. They are drawn from the 1989 BMFT Subsidy Catalog, the 1989 DFG report, and the 1988 Environment Research Catalog (as continued in 1989).

Only projects that clearly set out to investigate environmental changes of a global nature were included in this table. The primary criterion is the transferability of the research results to models capable of improving man's understanding of the Earth as an ecosystem.

The table lists the three main headings: atmosphere, earth, and water, in the left-hand column. Ozone reduction and climate-related problems, which fall under the atmosphere heading, are shown separately because of the qualitative differences in the processes involved. The various aims of the projects are set out horizontally. They range from data collection ("measurements") through gaining an understanding of the relationships within the ecosystems ("understanding"), to pronouncing on the "causes" of changes and "predicting" them. The aim of the research is to determine the potential "effects" of global change.

German Research Funding in 1989 With Direct Bearing on Global Environmental Change. (Subsidies rounded to the nearest million DM)

Project subsidy for:	Causes	Measurement	Understanding	Predictions	Effect	Large-scale equipment	Total
Ozone depletion	*	5	2	0	***	6	14
Climate change	*	8	2	1	0.4	19	31
Sensitive land ecosystems	6	9	40	4	1	1	61
Sensitive ecosystems: coast, sea, cryosphere	**	8	13	**	0.4	1	23
Total	6	31	58	5	2	27	129
Expenditure by major research institutes (see fact list B for classification by topic)							102
Grand total (excluding institutional contributions from the FhG [Fraunhofer Society], MPG [Max Planck Society], and federal research facilities funded out of the federal budget)							231

* Research into causes in this field had been practically completed in 1989

** Research in this field was carried out mainly by the major research institutes

*** Research work has already been carried out in the past, but there were no projects in 1989 because of a major change of orientation.

The column headed "large-scale equipment" includes the development of technical aids (e.g., sensors and remote sensing cameras), but not the associated transport systems (e.g., satellites or research ships).

3. Association of Major Research Institutes

Each of the major research institutes that have come together to form the Association of Major Research Institutes has undertaken to analyze environmental pollution in the three environmental sectors of water, air, and earth, according to its individual research specialty. They also record the effects of the environment and climate on man and his habitat, and are working on developing environment-friendly and nonpolluting technologies. Work relevant to global environmental change is currently being carried out at the following major research institutes:

- Alfred Wegener Institute (AWI);
- German Aerospace Research Institute (DLR);
- Radiation and Environment Research Association (GSF);
- Geesthact Research Center (GKSS);
- Juelich Research Center (KFA);
- Karlsruhe Nuclear Research Center (KfK).

The following basic research projects are being carried out in the aforementioned environmental fields:

a) Water

- Research into the movement of water on the earth's surface and underground, and into the transport patterns of anthropogenic and naturally occurring substances contained in water in the seas, watercourses, and lakes;
- Analysis of the most significant oceanographic parameters and the concentrations of heavy metals and organic trace substances in water, and especially in the seas;
- Further development of the methods employed in the remote sensing procedures used in charting the substances contained in the high seas and inshore waters and their temperatures.

Expenditure in 1989: DM16.5 million.

b) Air

- Development of analysis methods for identifying and determining the quantities of trace substances in the atmosphere;
- Acquisition of basic knowledge about flow and exchange processes in the atmosphere at all points on the scale and under various orographic conditions. The aim of this work is to investigate the routes taken by pollutants in the air and the transformation processes that they undergo;
- Study of physical and chemical conversion processes in the atmosphere and how air pollutants are deposited.

Expenditure in 1989: DM30.9 million.

c) Soil

- Research into the decomposition, mineralization, sorption (fixing), and bonding of foreign chemicals in selected soils in realistic field conditions;
- Quantification of the behavioral model of environmental chemicals on the bioactivity of soils and plants in different soils and environmental conditions.
- Deposition and distribution of pollutants in characteristic soil types.

Expenditure in 1989: DM14.1 million.

The main contributions to climate research relevant to global change provided by the individual institutes are as follows:

- Development and use of three-dimensional regional models of the ocean, the atmosphere, and the cryosphere;
- Use and processing of satellite remote sensing data;
- Research into the variability of the ozone concentration in the stratosphere;
- Interaction between sea ice and the lower strata of the atmosphere in the polar regions, and general polar research.

Expenditure in 1989: DM40.5 million.

Overall expenditure for work relating to global environmental change in 1989 thus amounted to DM102 million. [passage omitted]

Moellemann on New Nuclear Power Plants

AU1803120891 Hamburg BILD AM SONNTAG in German 17 Mar 91 pp 2-3

[Interview with FRG Economics Minister Juergen Moellemann by Michael H. Spreng, Friedemann Weckbach-Mara, and Philipp Kirschner in Bonn; date not given: "Moellemann: New Nuclear Power Plants Also in the West"]

[Excerpt] [BILD AM SONNTAG] In east Germany two new nuclear power plants are being built in Greifswald and Stendal instead of the old ones. Do you also plan to renew nuclear power plants in the west?

[Moellemann] There are no concrete projects. However, we have to make use of nuclear energy as long as we do not have anything better. In view of the imminent disaster as regards the global climate, I do not see any alternative in the medium term, because additional coal-powered thermal power plants must not be imposed on the environment. In addition, our price for a tonne of coal is about three times as high as the price on the world market. Alternative energies and, above all, energy saving are particularly important for us. Nevertheless, in the west, too, in the foreseeable future in some cases we will not be able to renounce replacing older nuclear power plants with newer and safer ones. I am asking for the agreement of all parties to this solution. The laender of North Rhine-Westphalia and Saarland, which are governed by the Social Democratic Party of Germany, must know that subsidies for coal also depend on the attitude toward nuclear energy. [passage omitted]

Institute Develops Atmospheric Remote Sensing Apparatus

91MI0157X Bonn TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN in German 20 Dec 90 pp 10-11

[Text] A new measuring device called a MIPAS (Michelson Interferometer for Passive Atmospheric Sounding) has been developed and successfully tested at the Institute of Meteorology and Climate Research at the Karlsruhe Nuclear Research Center (KfK). This device can determine the concentrations of most major trace gases, such as ozone, methane, nitrogen oxides, or chlorofluorocarbons, either to an altitude of several dozen kilometers when earthbound or simultaneously and continually the world over when satellite-borne. The decision to use the system on the European Space Agency (ESA) polar platform in 1997-1998 and/or in the planned German environment satellite ATMOS in 1995 make it a pacesetter in remote sensing for ozone research.

Comprehensive global data bases on the state and composition of the atmosphere are necessary for an understanding of the causes of and interactive processes responsible for the additional greenhouse effect and ozone depletion, and for predictions of future developments. Remote sensing, which uses electromagnetic waves to carry information, is the best method for collecting global measurement data. Remote sensing from aircraft or satellites makes it possible to record widely-distributed parameters with a single instrument. The trace gases in the atmosphere constantly absorb and emit electromagnetic radiation in the infrared range. Each type of molecule has a characteristic radiation pattern, otherwise known as a spectrum, and the intensity of the radiation emitted or absorbed indicates the concentration of the gas molecules. If the intensity and wavelength of the radiation distribution emitted by the atmosphere are measured to give what is termed the emission spectrum, or if the sunlight filtered through the atmosphere is measured to give the absorption spectrum in the infrared wavelength range in question, in principle these spectra will contain the information about the

concentrations of many trace gases in the sections of the atmosphere under consideration. The concentrations of the individual trace gases can then be deduced by complicated mathematical processes based on the known spectra of the pure gases. Initially, this method only supplies average values of the concentrations within the section scanned. If vertical stratifications or entire volumetric distributions are also to be measured, a process similar to sectional radiography must be used, whereby the atmospheric spectra are scanned at various angles to the horizon from aircraft or satellites; the volumetric distribution of the concentrations is determined from the scan, rather like the way X-ray tomography is used to produce three-dimensional images from inside the body. The newly developed MIPAS exploits the interference capacity of light waves. If two wave trains of equal amplitude and wavelength are brought into contact, periodic attenuation or amplification, which is called interference, arises. This effect can be used to measure wavelengths by splitting the incident light on a semitransparent mirror in a device known as an interfe rometer.

The two beam sections are reunited via further mirrors. If the beam sections are rerouted by displacing the mirrors, a periodic light-dark phenomenon occurs at the exit from the device, which can be recorded as a variable of the mirror position and used to determine the radiation intensity as a function of wavelength. The different radiation emitted by the different trace gases can thus be identified from their intensity and wavelength, and their concentration can then be deduced.

In practice, this precision instrument must also survive the harshest conditions, such as transport to inaccessible areas, use in aircraft or stratospheric balloons, satellite launches, and space conditions. MIPAS therefore stands out for its particularly sturdy construction; in particular, a patented, high-precision, maximum reliability shift mechanism for the reflection mirror has been developed as a "double pendulum." MIPAS has already passed its acceptance tests in different versions in field use in Kiruna, northern Sweden, where it was used for research into the ozone hole, and in stratospheric balloons at altitudes up to 40 km. A version developed for use in aircraft is scheduled to participate in the major European ozone measurement campaign planned for 1991-1992. NASA expressed interest in MIPAS back in 1986, offering it a free flight on a Space Shuttle mission. In 1988 it was decided to install MIPAS on the ESA polar platform. Finally, MIPAS will also form part of the payload of ATMOS, an environment satellite that began life as a German initiative and is due to go into earth orbit in 1995.

Measures Limiting Waste Packaging Adopted

91MI0123A Bonn WISSENSCHAFT WIRTSCHAFT POLITIK in German 21 Nov 90 p 4

[Text] The Regulation on the Avoidance of Packaging Waste adopted by the cabinet last week forces industry and trade to take concrete steps to avoid waste and to recycle packaging material. To escape a compulsory deposit of 50 pfennigs per drum for detergent, cleaning agent, and latex paint packaging from 1 January 1993, the economy must build up "consumer-friendly collection systems" as an alternative. This notwithstanding, stores remain obliged to take back outer wrappers directly and forward them for recycling.

To guarantee the success of privately organized garbage collection systems, the law lays down specific collection quotas. Initially, effective 1 January 1993 through 30 June 1995, at least 50 percent of all packaging must be covered by a system of this type each year. On 1 July 1995, the quota will rise to at least 80 percent, not of packaging as a whole but of each individual raw material such as glass, paper, metals, plastics, or composite packaging. By the same date, sorting quotas of 90 percent must be attained for glass, tin plate, and aluminum and 80 percent for remaining types of packaging. Moreover, all the materials sorted must be recycled.

Evidence to this effect must be submitted to the refuse authorities in each of the FRG Lands. It is the declared goal of Federal Environment Minister Professor Klaus Toepfer that "a drastic reduction in garbage must be achieved." The minister believes that this regulation could avoid between 6 and 8 million metric tons per annum of the annual accumulation of 32 million metric tons of domestic and industrial refuse. This is primarily intended to relieve pressure on the municipal garbage dumps whose capacities, the minister estimates, will be exhausted within two to five years.

Toepfer told newsmen in Bonn: "This regulation will force all those responsible to dispense with packaging as far as possible and, in cases where packaging is indispensable, to set up viable recycling facilities." The SPD [Social Democratic Party] is afraid that the regulation will result in a "considerable increase in garbage incineration." SPD environment expert Harald B. Schaefer said critically: "It is extremely doubtful whether, in practice, the packaging regulation will lead to the anticipated success." Indeed, the priority of recycling over incineration is mentioned merely in one programmatic clause in article 1 of the regulation, the opposition politician points out.

IRELAND

Lobbying of Environment Agency Outlawed

91WN0300A Dublin IRISH INDEPENDENT in English 18 Jan 91 p 3

[Article by Tony O'Brien]

[Text] It will be an offence to lobby any member of the board or any employee of the new Environment Protection Agency (EPA) to try and influence their decisions, Junior Minister Mary Harney has revealed.

And she said this was just one of the ways in which the independence of the new agency will be guaranteed. She

pointed out that the agency will have a large budget (£8m) and the freedom to act on its own.

"If the new agency is to have the full confidence of the general public it must be tough, independent and fair in all its dealings and it must be seen to be so," said Ms. Harney, the Minister for Environment Protection.

This independence was guaranteed by a number of important elements, including the fact that the executive board will be selected by an independent committee. It will have sole and direct responsibility for licensing a wide range of activities.

And she declared: "It will be an offence under this Act to lobby any member of the board or employee of the agency with the intention of influencing improperly a matter to be decided by the agency.

Contrary to some public misconceptions, she said the licensing procedure to be operated by the EPA does provide for full public participation with provision for third party objections and oral hearings where necessary. However, instead of appealing to An Board Pleanala, objections to licences will be heard by the agency.

Minister Harney insisted that the EPA would not only safeguard our environment but it will also safeguard our economic future. But while EPA will not be "anti-industry," it would be "solid evidence to the world that Ireland is serious about preserving our unspoilt environment."

Continued economic growth, said the Minister, would depend more and more on the perception abroad that Ireland is "environmentally friendly. It's no longer an issue of jobs or the environment but jobs because of the environment."

The Minister for Environment Protection pointed out that while Ireland does not have huge reserve of oil or mineral wealth "we do have what is probably the cleanest environment in Europe, a natural resource which will never be exhausted if we take care of it."

Ms. Harney told a Progressive Democrats party meeting in Dublin that the Government was committed to sustainable economic development. This meant that in the pursuit of economic growth to meet the needs of the present generation "we must not compromise the ability of future generations to meet these needs."

She maintained that while the agency should not be seen as anti-industry, it would be pro-environment. "If that means anything, it means that it will be anti-'dirty' industry, anti-'dirty' agriculture, and antipollution."

ITALY

Power Plant Closed for Pollution Violations

91WN0307A Rome L'UNITA in Italian 2 Mar 91 p 12

[Article by Mirella Acconciamessa: "ENEL [National Electric Power Company] Closes Its Huge Power Plant at Porto Tolle"]

[Text] Rome—The ENEL [National Electric Power Company] is closing the Porto Tolle Power Plant. "Thanks to the completion of the national network, customer service will be maintained in any event." Thus, there will be no interruption in the supply of energy to industries and citizens. The decision was reached yesterday after a day of discussions. In a brief communique ENEL states: "With reference to the investigation opened by the prosecuting attorney's office of the Rovigo district magistrate's court on the discharge of water by the Porto Tolle plant, it has been decided to carry out an extensive check aimed at verifying the authenticity of the facts on which such investigation is based, and hence to study the possibility of technical action." And, for this reason, it has decided to "suspend the productive activities of the power plant."

Thus, ENEL is taking precautions. Faced with the 15 notices of violation sent to the ENEL managers, including President Viezzoli, by Rovigo Deputy Prosecutor Giampaolo Schiesano, the top leadership of the national electric power agency thought it would be more prudent to study the possibility of technical action.

Judge Schiesano's charge is clear. The ENEL takes cold water from the Po and the Adriatic to cool its Porto Tolle plant and returns it, boiling and chlorinated, to the river and the sea through a canal built for that purpose. However, on the basis of its width, length, and depth it should be considered a regular branch of the river. Furthermore, the ENEL has been acting this way for more than 10 years, without being authorized to do so, thus violating article 23 of the Merli law.

The Porto Tolle Power Plant, powered by fuel oil, has a capacity of 2,600 megawatts; it supplies Emilia Romagna, the Marches, Venetia, and half of Lombardy. Considered the largest thermoelectric power plant in Europe, it was built in the beginning of the 1960's right in the heart of the Po Delta. "The project was strongly challenged by Italia Nostra and by some members of the scientific and political world for the serious and predictable risks of atmospheric pollution," Gianluigi Ceruti, a Green, recalled in a question he presented yesterday. He asked Minister of Environment Ruffolo to be present at the criminal proceedings under way, and asked Minister of Health De Lorenzo to arrange for an epidemiological investigation of the area affected by the plant's pollution effects in Venetia and in Emilia Romagna, to be directly carried out by the central administration and under the responsibility and control of the Higher Institute of Health. Ceruti then asked the minister of industry, as the body responsible for control over ENEL, to implement the powers of the law to prevent the continuation of ENEL's scandalous practices of placing on its payroll mayors and other local administrators of municipalities where electric power plants are installed, and to give Parliament a list of the people in this situation, either at Porto Tolle or the rest of the national territory.

For its part, the Environmental League of Venetia asks that "a study of the environmental impact" be made of

the Porto Tolle Power Plant, at the expense of ENEL itself, but carried out by experts trusted by the environmentalists. The request is due directly to the scant trust reposed in the study commission installed in the zone for environmental protection, and whose exclusive function until now has been to calm people and give assurances that all is well.

Device for Discovering Toxic Wastes Developed

91WN0286A Milan PANORAMA in Italian
3 Mar 91 p 159

[Article by Luigi Bignami: "The Poison Sniffer"—first paragraph is PANORAMA introduction]

[Text] A machine makes it possible to discover toxic wastes in illegal dumps.

There are believed to be no less than 5,978 illegal dumps in Italy: This is revealed by a study, the first of its kind, conducted by the Ministry of Agriculture on a sample of 6,890 municipalities. How can they be identified and cleaned up systematically rather than accidentally, as happened last week in connection with the dangerous accumulations in the Flegrei area [section of Naples] that were identified after the hospitalization of a truck driver made ill by the poisons he had transported from Piedmont? There is a new investigative system by means of which it is possible to discover the nature and the dimensions of underground deposits that are genuine chemical time bombs. Even the more dangerous drums can be recognized.

Up to now electric and seismic waves have been used to "see" into the subsoil, but while these function well at depths on the order of hundreds or thousands of meters, they are not very trustworthy in the analysis of more superficial strata. A more efficient technique, based on a probe only recently available in Italy, is able to determine the composition of the first 20 meters of soil with great accuracy.

The probe is halfway between a radar and a sonar. An antenna placed on the soil emits acoustic and electromagnetic waves that are reflected differently by the various underground strata, making it possible to obtain a very precise radiograph. Giorgio Comerio, one of the executives of Georadar, the company that in collaboration with the CNR [National Research Council] developed the probe and put it into operation, explains that "a computer makes it possible to distinguish 16 different materials and to assign a color to each of them." Thus, empty spaces, drums—intact or in the process of crumbling—and layers of clay can be identified on a monitor in real time. The device is not bulky and can be transported.

Once a deposit of toxic waste has been discovered, what can be done? By means of injections of fluids that effect impermeability, it is possible to "capsulize" them, enclosing them in a shell strong enough to prevent any contact between the polluting substances and the surrounding soil. First of all the bottom is made impermeable with a mixture of chemical substances that harden after reaching the desired position. Then perimeter walls are built, fastening them onto the bottom block. According to Aldo Antonini of Petracem, a Milan company in the forefront of the sector, a deposit thus treated should not create any more problems but rather permit any kind of environmental recovery, from agricultural use to construction. The sole doubt: Might not so refined a technology induce the proliferation of illegal dumping?

Need for Catalytic Converters Seen

91WN0286B Milan PANORAMA in Italian
3 Mar 91 p 183

[Article by Stefano Scotti: "Catalytic for Whom?"—first paragraph is PANORAMA introduction]

[Text] Manufacturers and the government are betting on clean mufflers. But the Italians are not buying them.

This time the general manager of FIAT, Cesare Romiti, entered the fray directly: First, on Saturday 16 February, by signing, together with Minister for the Environment Giorgio Ruffolo, a "preliminary protocol for a contract program for environmental protection and care," and then three days later with an agreement between FIAT and the municipality of Rome for the free analysis of the emissions of all the automobiles that are presented to FIAT dealers and plants in the capital by 15 May. The goal: to reduce urban pollution caused by automobile exhausts and to foster the use (beginning on 1 January 1992, a year earlier than the deadline provided in EEC directives) of catalytic exhaust systems.

An initiative similar to the one in Rome was announced last year in Milan during the most critical months of urban pollution (this year the municipality did it itself). At that time also the FIAT shops offered free analysis of exhausts, but the results were not very great: 35,000 checks, but very few actions taken against automobiles not up to standard. In order to improve the results this time, the capital authorities also provided for penalties: For example, revocation of permits for entrance into the center of town for all automobiles found not to be in conformity with the controls by the month of March. In any event, the offensive launched against poisonous exhaust fumes does not appear to be destined for success as long as it is entrusted primarily to the good will of automobile owners.

Sales data confirms this: In 1990, of 2.3 million automobiles sold, only a little more than 16,000 (0.7 percent) were equipped with catalytic converters. In the months of November and December the percentage rose slightly (1.2 percent). And in Milan, in periods when the alternate plates policy was in use, only a few hundred vehicles with catalytic converters were sold, although they were not subject to any restrictions either. These are ludicrous figures relative to the European averages, and they were in any event not evenly distributed over our territory: A

large part of the automobiles with catalytic converters were sold in the Trentino-Alto Adige region where the German-language population has shown a sensitivity similar to that of automobile owners in Germany.

According to studies made by FIAT, the principal motivations that direct choice of an automobile are economic and emotional: In the top places are performance, appearance, purchase price, and technological content. Respect for the environment is relegated to last place. Add to this the fact that the catalytic converter involves a certain loss of power and an increase in price that weighs more heavily on smaller cars, and the reasons for the lack of interest of Italian car owners are clear.

At present there are two systems for reducing harmful emissions: the catalytic converter with three exhausts used on vehicles with fuel injection, which abates unconsumed hydrocarbons and carbon and nitrogen oxides (average cost 1,200,000 [lire]); and the so-called retrofit or muffler with two exhausts (can also be installed on carburetor automobiles already in circulation), which acts on hydrocarbons and carbon oxides (average cost 600,000 lire). The problem for diesel vehicles is different. On them the emission of unconsumed hydrocarbons and of nitrogen oxides is in fact low (at the level of automobiles with converters), while the emission of sulfur (present in diesel fuel) and of the so-called "particulate matter," that is, of unconsumed particles, the elimination of which is still too expensive for automobiles, is extremely serious.

It is difficult to believe that owners will spontaneously take upon themselves additional costs of this magnitude in the name of concern for the environment, which, at least as far as the statistics indicate, does not seems to worry them a great deal. On the other hand, even in the other European countries the success of catalytic converters is due to legal obligations and incentives. In Switzerland, Austria, Denmark, Norway, and Sweden catalytic converters are obligatory. In Germany, Holland, and Belgium monetary incentives are granted on the purchase of clean automobiles. Only in Italy, France, and Great Britain are there neither laws nor incentives. And the extent to which automobiles with catalytic converters are in use is, respectively, 0.7, 2.3, and 3.9 percent.

This is a fact that the minister of environment seems to have understood, if it is true that he intends to propose the suppression or reduction of the superpermit on clean diesel engines. Nothing, at least for the moment, is anticipated on gasoline engines. As far as the latter are concerned, the principal tax burden falls on gasoline. And it is unlikely that the state coffers can give up a flow of money of that kind.

SWEDEN

Clean Surface Treatment Method Presented

91AN0177A Stockholm NEW SCANDINAVIAN TECHNOLOGY in English No 4, 90 p 6

[Article: "Solvents Superfluous With New Surface Treatment Method"]

[Text] Surface treatment of many plastics, which is frequently environmentally hazardous, will soon be superfluous. A new method developed by PP Polymer AB, a firm of consultants and development engineers based in Stockholm, Sweden, means that washing with chlorinated solvents is no longer necessary.

This method also makes it possible to paint, glue, and press plastics which are otherwise difficult to process.

The new, patented technology is based on a modification of the plastic surface. The surface energy increases and changes the hydrophobicity of the polymer.

The plastic is submerged in a chemical bath for a few seconds, during which time the plastic surface undergoes a permanent change. Precisely which chemicals are used is something that the company is not willing to reveal, but we are told that hydrogen atoms in the long polymer chain are replaced by other atoms. This results in steric stability. Only the surface is affected and not the bulk material.

The method opens some very interesting perspectives for manufacturers of products such as motor vehicles, plastic carrier bags, and composites. These manufacturers are currently obliged to make use of dangerous solvents to enable their products to be treated with paints, adhesives, or printing inks. The toxic substances end up not only on the plastic surfaces but also in the surroundings. They are not degradable.

In addition to its environmental acceptability, the new method being introduced by PP Polymer has another major advantage: Several cheaper plastics which cannot be used in a traditional manner are suddenly becoming more interesting for industrial purposes. Examples include polyethylene and polypropylene.

SWITZERLAND

Socialist Party Supports Environmental Tax

91WN0304A Geneva JOURNAL DE GENEVE in French 23 Feb 91 p 12

[Article by Anne-Marie Ley: "Ecological Taxes: Socialist Charm Offensive; Socialists Plan To Make an Issue of Them in Their Campaign for the Next Elections"]

[Text] An alert concerning the deterioration of the environment and the wasting of energy: The Swiss Socialist Party [PSS] has written into its platform for the 20 October federal elections the promotion of ecological taxes. It is in this way counting on providing additional support for the efforts being made by the Federal Department of Interior [DFI] in the environmental protection sector. Yesterday was an opportunity for it to present a program for ecological taxes in Switzerland composed by two economists.

The DFI is in fact getting ready to raise the curtain very soon on new measures that it will propose within the framework of the Antiatmospheric Pollution Campaign Strategy adopted by the Federal Council in 1986. One of

these proposals already cited by the head of the DFI, Confederation President Flavio Cotti, last year is precisely the levying of a tax on CO^2.

Therefore, Peter Bodenmann, the chairman of the PSS and a Valais national councillor, and Geneva National Councillor Rene Longet initiated the discussion yesterday in Berne on ecological taxes based on the principle of the polluter's paying for polluting, which is in turn based on the work written by the two Alemannic economists, Ruedi Meier, and Felix Walter.[1]

The latter start by sketching the picture—oddly familiar—of the environment as it appears today in Switzerland. Waste volume has doubled over the past 20 years and each inhabitant of the country bends under the weight of 400 kg of waste. Nearly a third of the population suffers from damage due to noise, most of which is attributable to automobile traffic. In many parts of the country the limits set on nitrogen oxides (NOX) and ozone are frequently exceeded and cases of respiratory illnesses are constantly increasing. Due to the effect produced by CO^2 emissions, also steadily on the increase, the planet's climate is imperceptibly warming, to the great concern of many scientists. According to the estimates cited by the authors, the damage caused the environment adds up to between 10 and 20 billion francs [Fr] a year in Switzerland, which represents from four to seven percent of the gross national product, or about Fr2,000 per inhabitant per year.

In the authors' opinion, the conditions and bans which, several years late in coming, have been imposed on aligning [standards] with technlogical knowledge have run into limitations and major difficulties of implementation. Because, they go on, it is imperative that we cut down on consumption, whether it be energy, traffic, the water we use, the sludge produced in purifying water, or waste, economic sectors must be encouraged, in their own and consumers' interest, to pay more attention to the environmental policy. Ecological taxes, thought of not as new taxes but as market economy instruments, should be added as complementary measures to the conditions and bans on particularly polluting substances.

The two economists recommend three types of taxes at the federal level: a tax on energy gradually increasing over a period of 10 years, the purpose of which is to lower CO^2 emissions by 20 percent between now and 2005 and to permit the realization of a nuclear moratorium; taxes that would hit pollutants—fertilizers, pesticides, and volatile organic compounds (voc); and an anticipated tax on the elimination of waste—batteries, motor oils, and other products. They further suggest that the cantons impose taxes on sludge generated in purifying water, on waste by means of a garbage tax, and on working the gravel pits. Moreover, their suggestion list is far from being exhaustive.

Refunds

According to their estimates, once they have attained their maximum volume, these ecological taxes could bring in some Fr10 billion. Instead of using this to relieve taxes, reduce the cost of social security, or appropriating this green manna for the protection of the environment, they propose to redistribute 95 percent of it in the form of refunds. And this with the aim of not penalizing those with low and middle incomes or financially strapped cantons. An annual ecobonus of Fr750 would be paid to those households that pay these taxes, just as a "work area" contract of about Fr1,900 per job would revert to business firms. In the eyes of the authors, this redistribution will not affect the impact of the taxes. Those who behave in a manner compatible with the environment will pay lower taxes and receive the same contract as the polluters.

The balance—5 percent—would be allocated to well-targeted incentive programs like the development of solar energy or projects for aid to the Third World and Eastern Europe.

Qualitative Growth

The two economists claim that ecological taxes will promote qualitative growth, particularly because they will entail a reorganization of the most polluting sectors, which will have to reconvert or restructure. In the foreign trade sector, they in particular recommend a system of discounts for firms that consume a great deal of energy and which are subject to international competition. And finally, in their eyes ecological taxes will provide Switzerland with the means of preparing itself for the adaptations that are made by the EC, whether it joins the latter or not, because EC legislation is undergoing rapid progress in the domain of environmental protection.

Footnotes

1. Ruedi Meier and Felix Walter, *Umweltabgaben fuer die Schweiz [Environmental Tax for Switzerland],* Ruegger, Coire/Zurich, 1991, 194 pp.