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JPRS Report

Environmental Issues

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Environmental Issues

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Report Challenges U.S. CFC Restriction Assertions

OW2401104292 Tokyo KYODO in English 1004 GMT 24 Jan 92

[Text] Tokyo, Jan 24 (KYODO)—Chlorofluorocarbons (CFCs) do not contribute as much to the greenhouse effect as previously thought, according to a report released Friday by the intergovernmental panel on climate change subcommittee.

The report challenges the United States' assertion that restricting CFC use will limit the overall output of greenhouse gases despite an increase in carbon dioxide emissions. The United States has made that argument the basis of its negotiations for a convention on preventing global warming.

The report is to be presented to a conference of government panels on climate change in Geneva from February 10.

The basis of the report's conclusions is that CFCs damage the ozone layer, but that ozone has the same greenhouse effect as the CFCs.

As a result, the report said, the CFC contribution to the greenhouse effect was largely offset by the damage to the ozone layer in the lower stratosphere in middle and upper latitudes over the last decade.

Japan and European countries have maintained at previous meetings on a convention that advanced industrialized nations should, with the exception of CFCs, limit their greenhouse gas emissions, including carbon dioxide.

But the U.S. continues to insist that it would be difficult to control carbon dioxide emissions and calls for the setting of an overall target which would include CFCs.

CFCs are used in aerosol sprays and refrigerants.

Japan, Norway Agree To Help Developing Nations Curb CO₂ Emissions

OW2701054092 Tokyo KYODO in English 0408 GMT 27 Jan 92

[Text] Tokyo, Jan. 27 KYODO—Japan and Norway agreed Monday to work together to create a system to finance developing countries' efforts to reduce carbon dioxide emissions, officials said.

The agreement was reached in a meeting between Environment Agency Chief Shozaburo Nakamura and Norwegian Prime Minister Gro Harlem Brundtland.

The Norwegian leader arrived in Tokyo on Sunday on a four-day official visit.

Nakamura and Brundtland also agreed to cooperate in persuading the United States to make further efforts to cut back carbon dioxide emissions, the officials said.

Brundtland was quoted as saying carbon dioxide emissions-reducing countermeasures taken by developing countries, with the support of developed nations, would be more efficient at preventing gradual warming of the earth than stepping up efforts in developed nations.

She also said carbon dioxide emission reductions achieved in a developing country should be regarded as cuts made by the more advanced country, since they are helping the developing nation's reduction efforts.

After the talks, the Norwegian prime minister and her husband had lunch with Emperor Akihito and Empress Michiko at the Imperial Palace.

Conference on Semi-Arid Zones Issues Document for Rio-92

PY0102151892 Brasilia Radio Nacional da Amazonia Network in Portuguese 0900 GMT 1 Feb 92

[Text] The participants in the international conference on the impact of climatic variations and sustainable development in semi-arid regions issued the Letter of Fortaleza on 31 January. The document is a summary of the conference's conclusions, which will be presented to participants of the Rio-92 [UN World Conference on the Environment] conference.

In the letter, participants present proposals on ethical and political positions that political leaders at all levels must follow throughout the world. Scientists and research specialists who participated in the conference listed six items that should serve as guidelines to coordinate efforts to develop semi-arid regions. The scientists say that social and economic difficulties in dry areas are mainly to blame for the destruction of the environment. In order to resolve the problem, the scientists proposed structural reforms like agrarian reform and adequate policies on water distribution.

The document also stressed the need for the creation of an information network to permit the exchange of experiences among the various institutions working in these areas. The document concluded by stating that all proposed solutions must take into consideration that the populations in these semi-arid regions have historic ways to adjust to drought situations.

New Convention on Baltic Marine Environment To Be Signed

LD0702224992 Moscow TASS in English 1707 GMT 7 Feb 92

[By ITAR-TASS correspondent Aleksandr Surikov]

[Text] Helsinki, February 7 (TASS)—A new international convention on the protection of the Baltic marine environment will be signed in Helsinki in April. Its text has been endorsed by the 13th session of the Helsinki Commission, an organization which has coordinated environmental protection measures by Baltic Littoral countries since 1980.

At present, Denmark, Germany, Poland, Russia, Finland, Sweden, and Estonia are active in the commission's work. The European Community has expressed its intention to sign the convention and become the Helsinki Commission's eighth member as an international economic integration organization.

The commission chairman, Professor Harald-Adam Velner of Estonia told a news conference here that the text of the convention has been supplemented with a number of new provisions of principle.

More than 15 years have passed since the previous convention text was approved. Many ideas about the most effective ways of countering environmental pollution have changed as well. Because of this it was decided that the convention should embrace not only sea regions, but also

inland water reservoirs adjacent to the Baltic Sea. This will place practically all pollution sources under control.

New provisions have been made for fundamental principles and obligations, notification, consultations, information exchange and monitoring the effect of different factors on the environment.

The convention is to be signed at a conference of environmental ministers scheduled for April 8-9, 1992 in Helsinki.

ANGOLA

Huila Elephants Hunted With Antitank Mines

92WN0248A Luanda JORNAL DE ANGOLA
in Portuguese 27 Dec 91 p 3

[Article by Cesar Andre]

[Text] At least 80 elephants have been killed during the past five months in Bikuar National Park (Huila) by furtive hunters who install antitank mines near water holes where the animals concentrate.

The indiscriminate killing of elephants, which is also carried out with firearms, has increased considerably.

The hunting of elephants, according to the same source, is assumed to be related to the smuggling of ivory.

In the month of March last year alone, four elephants were killed, while five others were wounded. Last year the authorities seized close to 100 kg of ivory in the area of Quipungo and captured 14 people involved in the smuggling.

Ivory from Bikuar Park is marketed in northern Namibia (Oshakati and Ondangua), where many Angolans live. The two areas are considered to be the zones of greatest influence of the South African marketers who earn the most from the damaging trade that is now in vogue.

Judicial and nature conservation authorities have made extensive efforts to break up what now seems to be a network of ivory traffickers, with branches in Lubango.

Bikuar is totally bereft of means of communication and vehicles, which makes it impossible to completely monitor the park.

Another problem contributing to the degradation of these resources is the practice, by the local population in the area, of burning for agriculture, which chases away the animals and reduces the grazing areas.

The lack of judicial and administrative control by the provincial government is another handicap, according to specialists in the area, who suggest increasing and better defining the park's boundaries to facilitate conservation and protection of the wild animals, in accordance with legal dispositions and regulations.

A pre-project that aims at the rehabilitation of Bikuar National Park was approved recently by the Huila Provincial Assembly. This is intended to create water reservoirs and protect Bikuar.

Bikuar Park, with an area of 7,900 square km, is located in Quipungo, south of the Kunene River, and extends from its falls to the commune of Capelongo (Matala) and Mulendo (Kunene).

Large game animals live there, such as elephants, holongos, punjas, red palancas, gungas, etc., but the park lacks motorized pumps and electrical generators.

BOTSWANA

Government Signs Wildlife Conservation Agreement With EEC

MB2401183992 Gaborone Radio Botswana Network
in English 1610 GMT 24 Jan 92

[Text] The Botswana Government and the European Economic Community today signed an 18 million pula agreement for wildlife conservation in northern Botswana. The minister of finance and development planning, Mr. Festus Mogae, signed on behalf of the Botswana Government, while the delegate for the EEC, Mr. (Paul Jacumen), signed on behalf of the community.

Speaking after the signing ceremony, Minister Mogae said the program would benefit local communities as they will be trained in wildlife conservation. For his part Mr. (Jacumen) said the agreement is a mixture of a grant and a soft loan toward an integrated program aimed at strengthening the institutional base of wildlife management. He said the project's objective is to protect, conserve, as well as manage the northern park and reserve, including the maintenance of their natural ecosystem.

He said emphasis will be placed on the attainment of a more efficient management system which will ensure the smooth utilization of wildlife resources. Mr. (Jacumen) further said the project will ensure better returns to the people by initiating income generating projects in rural areas, as well as enhance the sector's contribution to diversification of the country's economic base. He said emphasis will also be placed on the development of infrastructure, supply of technical and professional expertise to train local people.

In the past the EEC has supported a number of other wildlife projects, such as the Maun Wildlife Training Institution, aerial monitoring of wildlife populations. It has also contributed toward measures to conserve the Kgalagadi ecosystem, as well as giving technical assistance.

NIGERIA

Environmental Council Urges Bush Burning Ban

92WN0250A Lagos THE GUARDIAN in English
9 Dec 91 p 25

[Article by Sonny Unu]

[Text] Bush-burning—the popular means of clearing-up large parcels of land during the dry seasons—may soon be prohibited by law if proposals put forward by environmentalists are adopted by the Federal Government.

The environmentalists, comprising members of the National Council on the Environment—made up of all state commissioners for Works and Transport and their director-generals rose last week from the council's yearly conference in Lagos urging renewed Federal efforts in the sustenance of the nation's deteriorating environmental values.

They were worried, essentially, by the emerging supply and consumption patterns of the available sources of energy,

such as wood and coal, among others, and the absence of effective institutional structures at the state levels with which to ameliorate some of the problems.

The problem of bush burning, for instance, has become perennial and intractable, the council said, acknowledging "the ineffectiveness of the various solution proffered today."

Other immediate problems, according to the council are:

- the absence of alternative, practical and economically viable sources of energy;
- the menace of water hyacinth, its logistics and economic implications;
- the absence of appropriate economic instruments, incentives and disincentives in support of environmental protection and the sustainable use of natural resources; and
- the absence of a uniform institutional framework for implementing environmental programmes in the states.

But under the resolutions adopted by the conference, recommendations which have now been pushed forward for Federal Government consideration propose that:

ONE: a legal deterrent be promulgated for bush-burning;

TWO: all state governments in the federation establish "Sustainable Development Units" in their Ministries of Budget and Planning;

THREE: state governments should establish [words indistinct] institutional framework in line with what obtains at the federal level, considering the peculiarity of their specific ecological locations;

FOUR: state governments should set aside at least one per cent of their annual budgets for undertaking environmental restoration, protection and improvement measures;

FIVE: the environment should be integrated into all development plans and decision making at the three tiers of government; and

SIX: that states should set up enlightenment activities on our national environmental problems.

Meanwhile, the Federal Environmental Protection Agency (FEPA) has drawn up a programme of action for the local and state governments in the coming year.

According to the programme, FEPA will liaise with the local governments in order to make them more responsive to the problems associated with waste management which is primarily a function of the local councils.

Specifically, the local governments will be required to earmark specific sites for the disposal of wastes.

The lands will likely be leased out to entrepreneurs interested in investing in waste management.

Among the conditions for selecting waste contractors, however, will be the provision that they employ the services of an "expert" who will be responsible for sorting the waste after collection.

Useful components may then be resold for recycling, while others will be decomposed.

Expectedly, past performance of contractors will be subjected to scrutiny by FEPA towards ascertaining their suitability for the award of the contract.

Also, on FEPA's drawing board for next year is a mid-1992 plan under which all industries will be expected to have collected their discharge permit from the agency, for point and nonpoint sources.

Point sources are those wastes that are discharged into the country's ecosystem, while nonpoint sources, as the name implies, do not have a point characteristic.

Issuance of permit subjects an industry to sections 20, 35 and 36 of Decree 58 of 1988 on defaults.

These stipulate that an individual offender pays a fine of N20,000 on conviction or be imprisoned for a term not exceeding two years or both.

In the case of corporate bodies any member convicted for contravening the law will be liable to a fine not exceeding N500,000 and will pay compensation resulting from the breach thereof.

SOUTH AFRICA

President's Council Tables National Environment Management Report

92WN0268A Johannesburg *ENGINEERING NEWS*
in English 1 Nov 91 p 7

[Article by Julia Murphy]

[Text] The President's Council report on a National Environmental Management System has been tabled in the President's Council.

The report discusses the problems encountered in the use and management of the basic resources of soil, water, atmosphere and living resources, the causes of those problems, and the weaknesses of the present system.

Possible solutions to these problems are suggested and a model is given for a proposed new management system and structure which the President's Council believes could rectify the present shortcomings and ensure the proper management of the environment in the future.

The Council believes that because control over the environment is fragmented, no single state institution is capable of monitoring the application of policy on an ongoing, integrated and holistic basis.

However, the Department of Environment Affairs should not be converted into a "super department" vested with the executive responsibility for all aspects of environmental management—instead as little change as possible should be made to existing institutions, particularly where these are working well.

Up until now the primary responsibility of the Department of Environmental Affairs, has been to determine policy on the environment, at which it has been regarded as ineffective.

Accordingly, reads the report, the Minister and the Department must, after the institution of the proposed management system, be in a position to determine policy on the best advice and to promulgate such policy; translate such policy into concrete action through a variety of State departments, provincial administrations, local authorities and parastatal organizations; monitor the extent to which such policy has been applied and with what success, and to ensure that laws and regulations relating to the environment are enforced; and adapt policies where necessary and, by access to an appropriate forum, ensure the cooperation of departments and/or officials.

The report proposes that the management system must be capable of receiving and responding to community inputs and its working must be easily understood and accessible to the public.

The management of the environment will remain primarily the responsibility of central government because of the recognition that the environmental threats facing South Africa are so serious, and demand such urgent action, that central government is the most appropriate institution to manage the environment.

It has been recommended that the Council for the Environment be replaced with a new council so that representatives from groups including organizations within the private sector, the universities and broader research communities can be involved in the search for solutions to environmental problems.

It is also recommended that as soon as possible after its constitution, this new council appoint a working group to investigate ways in which greater coordination of research effort can be achieved.

One of many notable changes which the Council has proposed is to combine the many departments controlling pollution into one.

"Fragmentation of government control over the environment is rife and nowhere is the fragmentation more graphically illustrated than in the control over pollution.

"Pollution in its broadest sense is the responsibility of no less than five State departments, not to speak of every local authority in the country," reads the report.

It strongly recommends that a Branch: Pollution Control, be established with the Department of Environment with the chief goal of effectively controlling pollution in all its different forms so that the Minister can be aided in promulgating effective policy and regulations.

Environment Management Strategy in New South Africa

92WN0268B Johannesburg *ENGINEERING NEWS*
in English 1 Nov 91 p 11

[Article by Kim Trollip]

[Text] Water and air pollution control regulations are likely to be rewritten taking into account the quality requirements of the next (downstream) user, with little accent on a uniform standard. "Best practicable means" will be the key phrase and waste load allocation principles will be adopted. Professor Uys Grimsehl, head of the Department of Chemical Engineering at the University of Pretoria, takes a look at managing the environment in the new South Africa in this week's **CHEMICAL COUNT-DOWN**.

The environment management strategy in the new South Africa will involve the outlawing of toxic wastes, stricter water and air pollution control regulations and greater responsibility on the part of industry in general.

This is the view of Prof. Uys Grimsehl who says industry will have to assist in setting standards, develop new technology through research and sponsor education and training of suitable manpower.

"The position regarding the protection of the environment will be governed by the legislature, society's demands and what responsible industry will do."

He says: "The legislature (at all levels of government) will give attention to water and air pollution control, solid waste disposal and soil conservation.

Water Pollution Control

"Present water affairs legislation, in force since 1956, is no longer sufficient.

"Deterioration of resources, increased salinity and eutrophication have continued despite efforts in 1987 to rectify the legislation with sometimes ridiculous legislation.

"For example, a phosphate limit was placed on sewage treatment facilities while farmers were allowed to use as much phosphate as they liked in their fertilizers."

However, Prof. Grimsehl reports that the new approach is refreshingly intelligent and is based on the principle that uniform standards do not work.

The Batneec (best available technology not entailing excessive cost) principle is used, along with the RWQO (receiving water quality objective).

The RWQO realizes that different requirements must be laid out for the different users such as domestic, industrial, agriculture, recreation and conservation.

Waste load allocation will receive attention and, in the case of conventional waste, the assimilative capacity of the water source will be determined and standards set accordingly.

Legislature regarding the eradication of toxic waste will be borrowed from the U.S. Environmental Protection Agency and a 'red list' of substances not allowed in water effluent is expected.

The Department of Water Affairs is currently developing a monitoring program and a pollution prevention strategy.

Prof. Grimsehl points out that the days of cheap water are gone, and although South Africa has no shortage of water, it has a shortage of cheap water, which means industry will have to think of recycling and if necessary desalinating.

He believes technological developments in the field of water and effluent treatment will stay ahead of the requirements set by the quality standards.

However, he warns this will only happen if industry is willing to invest in research projects aimed at finding the Batnec.

Air Pollution Control

The key phrase in air pollution control legislation is "best practicable means."

This refers to available technology, cost and the nature of the environment.

Prof. Grimsehl warns that although government departments concerned with air pollution control are very lenient at present, this will not continue indefinitely.

"From a particle emission point of view, electrostatic precipitators, baghouse filters and wet scrubbers will still be in use well into the 21st century.

"They will be required to be more efficient than at present."

A strong lobby is developing for air quality standards to consider the requirements of the downstream user.

This is evident in the moratorium on Eskom power stations in the eastern Transvaal, unless they carry out 70 percent desulphurisation. If Eskom should consider building a power station in the north-western Cape, similar requirements may not be enforced.

Strong legislation to protect the worker against air and noise pollution is expected.

A serious pollution problem arises from the lack of electrification in townships and squatter areas.

"In the interest of reasonably decent air quality in urban areas, this will have to be done and the bill paid, with industry the most likely payer."

Prices are not expected to rise to levels comparable with those in Europe, but an increase over and above inflation is likely.

Dr. Grimsehl advises that in order to minimize the impact, industry should initiate power factor correction and maximum demand limitation.

"Industry, especially the chemical and metallurgical sectors, should consider process modifications with energy saving intent.

"In the chemical industry, the use of heat exchanger network analysis, waste heat and improved drying technology are immediate possibilities.

"Long term solutions include solar energy and other 'cheap' alternatives like combustible waste trash gas."

Solid Waste Disposal

Most regulatory activities dealing with solid waste disposal will emanate from local authorities and will address sorting of bio-waste from plastics, colored bottles from clear and similar problems in the "nuisance" category.

Toxic waste will however be severely legislated to the extent which radioactive waste is legislated.

Severe legislation is not expected for solid waste from mining, the metallurgical industry, coal ash dumps and slime dams, but these sites will probably have to be registered.

Soil Conservation

"The importance of soil conservation in South Africa should be manifested in stricter legislation on a variety of activities," adds Prof. Grimsehl.

"These are likely to include soil conservation and other agricultural activities, site choices for industrial development and those activities which destroy good agricultural land."

Responsible Industry

"I do not foresee environmental issues dominating the local political arena during the next decade.

"It would be foolish to ignore the demands of society for environmentally friendlier industrial activity, although society must understand the economics involved.

"In all probability, responsible industry will assist to protect the environment by acting within the spirit (rather than the letter) of legislative and societal requirements.

"According to a national management strategy, industry will be totally involved in the exercise and will liaise more with the relevant authorities in order to result in intelligent decision making.

"South Africa should develop pollution control technology for local conditions, instead of using overseas technology and ideally these would be cheaper than imported versions.

"This can only be achieved with research which requires funding by industry and the education and training of suitable manpower."

Dr. Grimsehl concludes that the universities have the structures and facilities to create chairs for environmental engineering and pollution control, as long as it is sponsored by industry.

High Risk Areas From Continued Sea Level Rise Identified

92WN0256A Cape Town *THE ARGUS* in English 10 Dec 91 p 5

[Text] Sea levels around South Africa are rising because of the greenhouse effect, says the University of Cape Town's [UCT] sea level research group.

The group estimates that toddlers today will live to see a rise of 0.5m, at which level coastal towns such as Walvis Bay—because of its low lying geomorphology—could be destroyed.

The group says that South Africa's "four particularly high risk areas" are:

- Greater Cape Town—from Melkbosstrand to Gordon's Bay
- South Cape coast—from Mossel Bay to Nature's Valley
- Port Elizabeth
- Natal South Coast, Southbroom, Greater Durban and Ballitoville

"Within these areas, the potential impact assessment studies for sea level rise all show that the greatest and most immediate risk is from the combination of rising sea levels and extreme storm events."

Especially at risk are "relatively sheltered environments like tidal inlets, estuaries, coastal wetlands and marinas."

Areas can be protected by sea walls or artificial dunes. The group does not mention what will happen to South Africa's beaches specifically but its figures indicate that seaside resorts could lose their sand and end up, literally, on the rocks.

The greenhouse effect is caused mainly by the build up of carbon dioxide which has been going on since the beginning of the Industrial Revolution 20 years ago.

Climatologists have warned that a doubling of the amount of carbon dioxide in the atmosphere would cause devastation along the world's coastlines—and the world is already half way there.

A 0.5m rise might not sound [like] much but it is enough, says the UCT team, to increase the severity and frequency of damaging coastal storms.

The computer model for Walvis Bay, for instance, indicates that what is now regarded as a one-in-200-year severe storm will become a one in 10 year event.

The group cautions that a lot more data are needed before risks can be accurately worked out.

Its preliminary findings are published by the Department of Environment Affairs in their journal CONSERVA.

"Planning for sea level rise is therefore essential if any form of coastal management and structure planning is going to succeed."

Over the past century globally averaged air temperatures are up by 0.5 deg C—"a rise thought to be caused by the greenhouse effect. Over the same period globally averaged sea levels have risen by between 10 and 20 cm.

"This rise has been attributed to thermal expansion of the upper layers of the oceans and the melting of temperature glaciers resulting from global warming."

The group says the eight hottest years recorded since 1880 have all been in the 1980s.

Eastern Cape Coast Rare Fish Identification Project Launched

92WN0256C Cape Town *THE ARGUS* in English
10 Dec 91 p 5

[Text] East London—A "rare fish identification project" has been launched on the Eastern Cape coast by Rhodes University's JLB Smith Institute of Ichthyology in Grahamstown.

The aim of the project is to increase public awareness of rare and endangered fish.

Anglers, divers, commercial fishermen and beachcombers are invited to send specimens to the institute for identification. They will get a certificate of acknowledgement.

The institute's senior marine ichthyologist, Dr. M.E. Anderson said the project would initially start along the coast from East London to Port Elizabeth. However, it is planned to extend the area over the whole South African coast.

"People see these unusual fish but they do not know what to do about them. We decided to launch this project so that they can bring them to us," he said.

Expensive deep-freezes have been placed at spots along the coast.—Ecna.

Cape Region Project To Protect Endangered Flora Underway

92WN0256B Cape Town *THE ARGUS* in English
10 Dec 91 p 5

[Text] Pretoria—South Africa has the most plant species to every unit of area in the world, but a staggering 2,300 of our 24,000 plant species are endangered.

The Red Data Book for plants, which catalogues those species threatened with extinction from man's activities, shows that the Cape region, renowned as the spectacular "World's Smallest Floral Kingdom," has contributed 1,800 of its 8,500 plant species to the book.

To address the increasingly endangered plant population, a project aimed at identifying threats to any species has been initiated by the National Botanical Institute and the University of Cape Town.

The project, to be run from now until 2001, involves hikers, ramblers, farmers and amateur botanists recording sights of the Proteaceae species at any location.

The occurrence of Proteaceae species within the limits of their distribution ranges are poorly known. The detailed data will allow possible threats to any species' existence to be quickly identified and appropriate action taken.

By identifying threatened species in areas not conserved, the acquisition of new areas for conservation can be optimally planned.

Vaalputs Claimed To Be 'World's Safest' Nuclear Waste Disposal Site

92WN0279A Johannesburg THE STAR in English
8 Jan 92 p 11

[Article by James Clarke: "South Africa Has 'Safe' Burial Site"]

[Text] South African nuclear authorities will find the Worldwatch Institute's claim that "no country has a safe nuclear waste burial site" hard to swallow.

South Africa probably has the world's safest burial site—at Vaalputs in the northern Cape. It is in an area which has been geologically undisturbed for hundreds of millions of years.

South African nuclear power protagonists have pointed out that in southern Africa's remotest, driest and least inhabited region—the far northern Cape and southern Namibia—there are uranium deposits, safe waste dump sites and an ideal place to cluster nuclear energy facilities.

The Worldwatch report does not mention South Africa.

AEC Stresses Radon Dangers, Control Strategy

MB0102135492 Johannesburg SATURDAY STAR
in English 1 Feb 92 p 7

[Report by Shareen Singh]

[Text] Each year between 1,000 and 1,500 South Africans die of lung cancer caused by radon leakages in their homes, schools or places of work, according to the Atomic Energy Corporation [AEC].

Radon, a radioactive gas which is released from granite, seeps through the floors of buildings.

Buildings with wooden floors are more susceptible to radon leakages than cement floors, according to research conducted by the AEC.

Acceptable levels of radon are between 200 and 400 becquerels per cubic metre. According to research, the number of South African homes exceeding these levels is between 0.5 and 2 percent. Dr. Gert de Beer of the AEC said. This was comparable to international standards.

But there was no need to panic about radon leakages in South African homes, Dr. de Beer added, pointing out that each year at least 10,000 South Africans contracted cancer due to smoking, a much bigger hazard.

Radon affected smokers more than nonsmokers.

The AEC had monitoring equipment which members of the public could borrow to measure the extent of radon leakage in their homes.

Individuals could then decide whether the cost of sealing off their homes against radon leakage was worth the benefits, he said.

The AEC would be making recommendations to the Government on a control strategy for South Africa.

Public awareness on radon, as well as a monitoring advisory service, were fundamental to the strategy, Dr. de Beer said.

Economic Measures To Promote Environmental Protection Viewed

92WN0040A Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
23 Jul 91 p 3

[Article by Zhang Kunmin [1728 0981 3046]: "Apply Economic Measures To Strengthen Environmental Protection Work, Promote Sustained, Stable, and Coordinated Development of the National Economy"]

[Text] U.S. Secretary of State Atchison predicted 42 years that the CPC would be incapable of solving the problem of feeding several 100 million people. The facts have provided an answer. Under the leadership of the CPC, we have not only solved the clothing and food problems of 22 percent of the world's population on seven percent of the world's cultivated land, but we are also now moving toward "relative prosperity". Not long ago, several other less-than-friendly voices were heard on the shores of the ocean. Would China be able to move forward with economic construction? Could China protect its ecology and environment? People are now waiting to see and we are full of confidence. This article begins with an economics perspective after restudying the basic principles of Marxist political economics and considers further reinforcement of environmental protection work and promoting sustained, stable, and coordinated development of the national economy.

I. The Essence of Environmental Problems

A. The role of the environment and environmental problems

The environment plays two types of roles in the area of its relationship with human activity. One is providing human activity with all types of essential natural resources. Nothing of people's clothing, food, shelter, and transportation can be separated from material exchange with the natural world. The environment is the material foundation for mankind's involvement in production and a basic condition on which mankind depends for its existence. Besides these material interests, an excellent environment also provides exquisite and comfortable spiritual enjoyment for mankind. The second role is that the environment assimilates and processes the waste materials and waste energy created by human activity. Garbage, for example, is decomposed and digested by microorganisms in the environment and converted into plant nutrients. If mechanical equipment were used in a similar role, it would require enormous costs, but the environment can be substituted for this expenditure. This natural cleansing function of the environment is the "environmental capacity" that everyone mentions frequently.

Environmental problems are problems that appear in these two main roles of the environment. Formerly desired resources become increasingly harder to obtain and the self-cleansing role that was desired originally becomes increasingly harder to achieve. Examples include water pollution, shortages of water resources, soil erosion, land desertification, extinction of species, and so on.

Why do these environmental problems occur? Analysis from economic factors shows that the reason is that the environment, this precious wealth, has three unique characteristics:

1. The environment is public property that cannot be eliminated and is non-competitive in consumption. Environmental destruction is the result of the free, wanton, long-term, and excessive use of the environment by people who use these two unique qualities of the environment.
2. The environment is property for which it is difficult to use money to evaluate its usefulness. Like the losses caused by environmental pollution, it is hard to use money to calculate the usefulness of the spiritual enjoyment, physical health, and biodiversity arising from a comfortable environment, the replacement value of genetic resources, and so on.
3. The environment is property that is easily damaged and difficult to restore once it has been damaged. The environment that exists at present is a stable state that was attained only after a very long period of time, and it also has a tendency toward maintaining this state. If manmade interference exceeds a certain degree, however, irreversible changes can occur in the environment. During a time when knowledge of the environment is poor, the legal system is not strict, and economic measures are ineffective, the environment is inevitably assaulted by human activity and environmental problems inevitably appear continuously. Protecting environmental quality is an indication of continual progress in human civilization and respect for natural laws and economic laws.

B. Protecting the environment is the same as protecting the forces of production

Marx said that "labor is first of all a process between man and nature and a process of material exchange between man and nature that is caused, readjusted, and controlled by the vitality of man himself." Marxism believes that there are three main factors in the forces of production: one is people who engage in labor, the second is the objects, raw materials, materials, and so on of labor, and the third is labor information, tools, machinery, and so on. Based on these principles, it is entirely right for us to state forcefully that "protecting the environment is the same as protecting forces of production". The reason is that preventing environmental pollution and maintaining the ecological equilibrium play a very obvious role in protecting the health of laborers themselves and future generations, ensuring the sustained utilization of natural resources, extending the useful lifespans of machinery and equipment, and so on. Moreover, the goal of socialist production determines that conscious protection should be given to the forces of production.

However, why it is always so hard for the ideology of some people to establish the idea that "protecting the environment is the same as protecting forces of production"? There are two main reasons: 1) The objective situation of "investment starvation"; 2) Short-term behavior that is only concerned with "obtaining the closest and most direct beneficial results of labor". The state must fully apply

administrative, legal, educational, technical, and economic measures to reverse this idea and method of doing things that only considers the partial and fails to consider the overall situation and that only considers the immediate and fails to consider the long term. In the economic area, we absolutely cannot let those enterprises or individuals off lightly who treat the environment with indifference and pollute the environment. Thus, it is entirely necessary that we collect pollutant discharge fees or additional fines in accordance with the law.

It deserves special understanding that all environmental resources are the precious property of the state. In this sense, for China, protecting the environment also has major significance for protecting state-owned resources, maintaining the public ownership system, and consolidating the socialist system.

C. Protecting the environment must be done according to economic laws

China's economy is no longer a natural economy or a product economy. Instead, it is a socialist planned commodity economy. There are still disputes among theoretical circles concerning whether or not natural resources fall within the scope of commodities. However, natural resources are certainly precious property of the state and the method of converting them into commodities should be employed in managing and coordinating all resources including forests, land, mineral deposits, water resources, and so on. There should also be rational prices and charges for these resources. This is particularly true for China, given its low level of resources in per capita terms and the extremely acute conflicts between supply and demand, which make it even more necessary that we strengthen management of the conversion of natural resources into commodities. The distorted price system of "high product prices, low raw materials prices, and no resource prices" that has existed in China for a long time must be resolved via reform. The method of "the state, collectives, and individuals all using" the state's resources and "abundant water flowing away quickly" should be corrected. Otherwise, it is inevitable that resources will be used irrationally and that the environment will not be protected.

There are two types of mechanisms in economic operations, planning mechanisms and market mechanisms. A socialist planned commodity economy can integrate these two types of operational mechanisms very well and allow them to play their roles more effectively.

Environmental protection is even more concerned with social goals and the public interest. It should make full use of the role of planning mechanisms to make unified arrangements and coordinate plans, include environmental protection plans in state economic and social development plans to provide guarantees, and use state finances, taxation, banking, interest rates, and so on for continual readjustment. There is much that China can do in this area.

Market mechanisms are also indispensable. Because the economic interests in environmental protection are usually not found within enterprises, enterprises themselves often

tend to avoid responsibility for environmental protection and fail to treat the pollutants they discharge properly to conserve the active labor and material labor involved in preventing pollution. By doing this, enterprises can increase their own profits, but they violate the social interest. The experience in trials in Shanghai Municipality in applying market mechanisms to allocate water resources shows that if a suitable water environmental resource price can be formulated, it will provide a very strong stimulus for all polluters in a region with special development characteristics to reduce their discharges as much as possible in order to conserve the pollutant discharge indices that they can utilize. This actually provides a pollutant discharge trade market. The basic reason for excessive use of water environmental resources is that the cost of using them is not included in production cost accounting, nor is it treated as a basic input in production and consumption. As soon as waste water discharges or water resource utilization is made a part of the production costs of a plant, when the enterprise is making comprehensive considerations of reducing costs, it will inevitably utilize water resources according to objectives and in a limited manner. For the long history of uncompensated holding and uncompensated utilization of water resources, it will bring market mechanisms into the water resource allocation process, which is undoubtedly a major reform.

II. Choosing Development Strategies

As a developing socialist nation, we must soberly acknowledge our national conditions, more carefully summarize experiences, and utilize resources in a more conservational manner.

A. Reacknowledging our national conditions

When they are studying China's environmental strategies, many comrades have given enough discussion to these national conditions:

1. Our huge population places enormous pressure on the environment;
2. The dominance of medium-sized and small enterprises in conjunction with the growth of township and town enterprises has brought many new problems for the environment;
3. Our energy resource structure dominated by coal causes severe pollution;
4. Our overheated economy and short-term behavior present frequent shocks to the environment;
5. Our financial resources are limited and the state cannot spend a great deal of money on controlling environmental pollution.

In addition, we must have a profound understanding of these national conditions:

1. Our resources are limited. In per capita terms for many of China's major natural resources, we have 1.4 mu of cultivated land, 1.5 tons of mineral deposits, 0.12 hectares of forests, 2.7 cubic meters of water resources per year, and so on, all of which are lower than most countries in the

world, and they are extremely unevenly distributed. This is very ill-adapted to China's development objectives. Nevertheless, these scarce resources have still not attracted sufficient attention and value. Statistics show that average comprehensive recovery rates for mineral development in China are only 30 to 50 percent, which is 10 to 20 percent lower than in the developed nations. Energy consumption is also very high. Average energy consumption per unit of GNP is three times higher than world average levels and environmental pollution and ecological destruction caused by the waste of resources and energy are becoming increasingly severe. We are facing a situation in which our most serious resource and environmental conditions are bearing the burden of our greatest population in history.

2. Growth in national income is dominated by extension and insufficient intension, and resource allocation is extremely irrational. Among the various factors in the rate of growth in China's national income, reliance on consuming manpower, materials, and other extensional factors play a role as 83 percent, while reliance on scale economies and other intensional factors account for just 19 percent. Moreover, resource deployment, this important intensional factor, is a negative value. It is apparent that increasing the intensional role and optimizing resource deployments are urgent tasks.

3. Some people in foreign countries have divided environmental degradation into three categories. The first type is "waste in a wealthy country" that occurs in developed nations, such as the threat posed by freon and dioxin pollution and waste materials. The second type is "economy first, environment second" in emerging industrial regions like South Korea, Brazil, and so on (a similar situation existed in Japan in the 1960's). The third type is "poverty in a poor nation" in developing nations that cannot exist without consuming natural resources. One can see "wasteful" phenomena in China like disposable cans, hairspray, and so on as well as "poverty" phenomena with natural resources. At the same time, we are facing an economic takeoff, so it can be said that we have a mixture of these three types. This complex situation should attract sufficient attention.

B. Determine to carry on a continuous, steady, coordinated development strategy

For the past 10-plus years, some of China's environmental protection vanguards have criticized "growth limits", "zero growth theory", and other concepts of halting economic growth and the concept of "polluting first, treating later", and they have suggested strategic ideas like "coordinated development" of the environment and the economy, "synchronous development", and so on. The idea of "sustained development" also took shape gradually during the 1980's in foreign countries. "Sustained development" means "meeting the needs of people of the present era without constituting development that would endanger the ability to meet the needs of people of future generations". Sustained development of human society must be based on the enduring and stable supporting capacity of the ecology and environment and of natural

resources, and environmental problems can only be solved during sustained development of the economy and society.

In 1985, China proposed the principle of "sustained, stable, and coordinated development" for the first time, which comprehensively and profoundly summarized the experiences and lessons of economic construction in China, and proposed a complete development path adapted to China's national conditions. This has become one of the basic principles for the next 10 years. Resolutely implementing this principle is extremely beneficial both for economic and social development as well as for environmental protection.

C. Establish a resource conservation type national economic system

China cannot take the path of the developed nations in high consumption of resources and high waste in daily life. Per capita energy consumption in the United States in the 1980's was 9.5 tons of standard coal, and it was 3.7 tons of standard coal in Japan. If per capita energy consumption in China in the year 2000 is almost at the level of Japan in the 1980's of 3 tons, China's 1.3 billion people will require 3.9 billion tons of standard coal, which is fundamentally unrealistic given China's resources, and it could not be endured in terms of environmental protection. Thus, we must establish a low-level resource consumption conservation-type national economic system that includes an agricultural system that conserves water and land, an industrial system that is concerned with results and conserves energy and materials, a comprehensive transportation system that conserves transport capacity, a hardworking and thrifty daily life service system and social guarantee system that advocates appropriate consumption, and so on. We also must resolutely put a stop to the plundering development pattern of "relying on the mountains for food without nurturing the mountains" and "relying on the water to drink without nurturing the water", and advocate the development of ecological villages like Xiaozhuang Village in Anhui Province's Yingshang County.

III. Using Economic Measures

Article 28 of the "People's Republic of China Environmental Protection Law" (1989) stipulates a system for the payment of pollution/discharge fees by enterprises and Articles 35 to 39 stipulate a system for nine types of fines for illegal environmental behavior by enterprises. Article 4 of the "State Council Decision Concerning Further Reinforcement of Environmental Protection Work" (1990) emphasizes that, in accordance with the principles of "those who develop being those who protect, those who do damage being those who restore, and those who use being those who pay compensation" and "combining development and utilization with environmental protection and nurturing", there should be conscientious protection and rational utilization of natural resources. During the past 10-plus years, China has imported several economic measures from foreign countries, gradually "converted them to China", and at the same time some places have created several economic measures in accordance with laws and regulations, all of which have played a definite role. These

economic measures that have already been adopted or which have been studied and tried out and can be considered for adoption can be grouped into nine areas.

1. Pollutant discharge fee collection system. China began proposing the collection of fees for pollutant discharges in 1978. The State Council promulgated the "Provisional Methods for Collecting Pollutant Discharge Fees" in 1982. The collection of pollutant discharge fees was included in budgets and treated as an environmental protection subsidy, managed as special-item capital, and resolutely used as a special fund for special purposes. It was collected first and then used, and there could be no overspending or diversion. The sum of pollutant discharge fees collected during 1989 in China was 1.7 billion yuan. Implementation of the pollutant discharge fee collection system not only clarified the responsibilities that enterprises should bear in regard to pollution, but it also opened up a reliable route for raising capital. One of the main problems at present is that the fee collection standards are too low, sometimes even lower than the operating costs for pollution treatment facilities, so it is hard for them to play a role in promoting the prevention of pollution. If the amount of pollutant discharge fees were to be raised to make them equivalent to the harm caused by pollution, they could play a role in compensating for the costs of certain types of pollution. A second problem is that the types of fees collected are incomplete. If we could quickly establish a pollutant discharge fee collection system for SO₂, CFC, and solid wastes, this undoubtedly would be extremely beneficial for environmental protection.

2. Fine system. This is a means of administrative punishment for environmental violations behavior and it can be used in combination with other administrative punishments. The fines cannot be included in production costs and must be paid to the national treasury. A "dual penalty" system can also be implemented for administrative punishments, meaning that not only are the personnel with direct responsibility punished, but also that the legal persons or leaders concerned in the violation behavior are punished to encourage enterprises and their leaders to respect the law.

3. Subsidy system. China has no permanent system of subsidies at present at the national level. There is only application for approval by leaders or negotiations between the relevant departments in special cases to allocate one-time subsidies, but the amounts are very small. After reform of the pollutant discharge fee collection system, the State Council issued its "Provisional Methods for Compensated Utilization of Special Funds for Dealing With Pollution Sources" in July 1988 which stipulated that the over-quota pollutant discharge fees collected for this fund that were formerly used to subsidize key pollutant discharging units with funds for treating pollutants are to be set aside and managed at each level by local environmental departments by establishing independent accounts and implementing compensated utilization. This would help in overcoming capital overstocks, scattering, and so on caused by the noncompensated utilization of pollutant discharge fees.

Given China's large scope, the State Planning Commission is planning to allocate specific special funds as subsidies to guide the construction of environmental demonstration projects that have extension value.

There are also methods used in foreign countries to provide subsidies to enterprises for eliminating pollution, to reward enterprises for reforming technologies, to use factors of production that do not generate pollution, and to increase investments in pollution control facilities and carry out technological development that eliminates or reduces pollution. Besides this type of subsidy that does not have to be compensated after receiving financial subsidies, governments in some foreign countries also have a financial system for investments in preventing hazards with full or partial interest deductions. There are also preferential measures for tax exemptions like reductions in the time limits for depreciation of hazard prevention facilities, expansion of the scope of tax exemptions, and so on. China has adopted some tax reduction measures to encourage comprehensive utilization of waste materials but there should still be an appropriate expansion in the whole realm of environmental protection.

4. Pollution discharge rights trade markets. In the United States, when newly-built plants exceed permissible discharges of pollutants into the atmosphere, they can purchase pollutant discharge rights from other plants for the excess amounts of pollutants discharged and use them in production in the new plant. Overall, this can effectively reduce amounts of pollutants discharged. There are also trade markets for "water rights", "ecological rights", and so on in foreign countries. Many areas of China are extremely interested in this and are now conducting trials, and this should be actively encouraged. In foreign countries these market mechanisms are also used to resolve trends in global environmental problems and China should study this more extensively.

5. Capital raising system. In accordance with the spirit of "people building people's cities" and "those who benefit being those who invest", several areas have used this method of raising capital during the process of building basic facilities in cities, and it has played a role in speeding up urban construction and controlling environmental pollution. This should be clearly distinguished from "unorganized apportioning" and people's congresses at the province-level can study and formulate the necessary local laws and regulations.

6. A unified fee collection system. Several cities have built contaminated water treatment plants but it is hard for them to bear the costs of their operation. Whenever water is used it must also be discharged. In foreign countries, the cost of waste water treatment is included in the cost of water supplies, and there are reasons for this. China should borrow from it when making reforms in water prices and we can consider moving first with this item of reform. The price of a ton of water should not be lower than that of a common popsicle. This is actually one of the reasons behind our serious waste and pollution.

7. A security deposit system. This is a way to ensure that ecological restoration work is carried out at an appropriate time after development and construction projects. A specific security deposit should be paid before development begins. If the ecological or land restoration work is completed according to the stipulated requirements during a specified time period, the security deposit can be returned. Otherwise, it should be confiscated. There have been good results after implementation in some provinces, municipalities, and departments.

8. A mortgage fund system. To encourage the recycling of empty bottles, empty cans, old batteries, old fluorescent light tubes, and other waste materials, foreign countries collect a small appropriate amount of additional money at the time a product is sold and this money is returned when the goods are taken are being used to a specified location for recycling. China also had similar qualities in the past in product recycling. In the past several years, however, there have been continual reductions in the number of buyback network points and the prices of waste goods have continually fallen, which has affected the results of recycling. If we fail to use economic levers to promote this type of work, not only will we waste resources and energy, but it can also lead to severe environmental pollution from waste batteries, old fluorescent light tubes, and so on.

9. An award fund system. At present, all local areas, all departments, and relevant enterprises have implemented an environmental pollution project responsibility system. There should be cash rewards and penalties for this. There are award fund systems for birth control and work safety. As one of our basic national policies, there should also be a similar award fund system established for environmental protection.

IV. Ideas for Actual Work

1. Continue to perfect various types of economic measures. I have listed just a few economic measures above. If we think clearly and integrate with reality, and encourage the creativity of the masses, we can certainly create many types of economic measures. Of course, there should also be a legal and flexible procedure for these economic measures.

2. Reinforce plan formulation, implementation, and administration. Marx said "after the elimination of the capitalist mode of production, but in a situation where social life still exists, value determinations will still continue to play a role in allocation in these senses: regulation of labor time and allocation of social labor among different types of production, and finally, the bookkeeping related to this we be even more important than at any time before".

In a socialist planned commodity economy, the state plans that embody "regulation of labor time" and "allocation of social labor" still play a decisive role in industrial policy guidance, determination of construction projects, allocation of budget capital, assignment of evaluation indices, and other areas. Article 4 of the "Environmental Protection Law" stipulates that: "environmental protection plans formulated by the state must be included in national economic and social development plans and the state must

adopt economic and technical policies and measures to benefit environmental protection so that environmental protection work is coordinated with economic construction and social development". On the basis of the Sixth 5-Year Plan and Seventh 5-Year Plan, the state's 10-year program and the Eighth 5-Year Plan outline are a new starting point. Future environmental protection plans must certainly be included in national economic and social development plans to achieve "projects, capital, materials, and assessments".

3. Strengthen the responsibility system. In the formation of administrative mechanisms in enterprises for "self decision-making, responsibility for profits and losses, self-development, and self-restraint", preventing pollution and protecting the environment should be one of the primary contents. This point is clearly stipulated in the "Enterprise Law" and "Environmental Protection Law". While conducting a new round of enterprise contractual responsibility work, responsibility for environmental protection should also be clearly stated. In this, we can give consideration to using consumption quotas and pollutant discharge quotas per unit of product for inclusion at an appropriate status for use as evaluation indices. This would encourage enterprises to conserve capital and energy internally and achieve "self-restraint". There should be rational determinations of overall depreciation rates in enterprises to ensure technical upgrading capital for enterprises. When carrying out technical upgrading, no less than 7 percent of technical upgrading capital should be used for pollution prevention in accordance with state stipulations. The depreciation time limit for pollution prevention facilities in enterprises should be reduced according to actual conditions to benefit replacement.

4. Continue with extensive research on environmental protection problems in natural resource accounting and macro-economic operations. In the past few years, many economists and environmental protection workers in China have conducted useful explorations in the areas of natural resources and their inclusion in the national economic accounting system and goals for assessing environmental protection in macroeconomic operations. These problems are far from being resolved internationally. The results of research that have been published show that Chinese scholars have made gratifying progress. In the future, we should invest even more manpower and materials in conducting research and in applying research achievements.

5. In environmental foreign relations, resolutely maintain the legitimate rights of China and developing nations. Environmental foreign relations involve both cooperation and competition. To maintain development throughout the ages, we must maintain an excellent ecological environment. For many developing nations at the present time, however, poverty and underdevelopment are the most important causes for their environmental deterioration. Only by maintaining a suitable amount of economic growth can they strengthen their capacity for protecting the environment. Thus, when discussing protection of the global environment, we must protect the legitimate rights

of developing nations and we must establish a new international economic order that is conducive to the coordination of the environment and economic development. We must protect the principle of not interfering in the internal affairs of other nations. Both in history and at the present stage, all of the developed nations are the world's main consumers of resources and the primary dischargers of pollutants. They should help the developing nations participate in efforts to protect the global environment or compensate them for the economic losses that arise as a result, and preference should be given to the transfer of noncommercial technologies that do not harm the environment. Considerations in the environmental area cannot be used as additional new conditions for providing development assistance, nor can they be used as an excuse for establishing new trade barriers. China historically has stressed cooperation in the international environment on the basis of reliance on one's own efforts but because problems in the area of international legislation concerning protection of the ozone layer, protecting biodiversity, preventing global warming, and other global problems concern each country's economic interests, we must maintain a clear head and adopt reasonable, effective, and detailed methods. We must fully embody China's willingness to participate actively in international cooperation and we must also protect the legitimate rights of China and developing nations.

Environmental Focus in Education Urged

92WN0040B Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
25 Jul 91 p 3

[Article by Wang Jun [3769 0193]: "The Environment, A Major Factor in a Nation's Basic Conditions—A Discussion of Environmental Education in Education on Our National Conditions"]

[Text] Education on basic national conditions and education on the party's basic lines during the initial stage of socialism are important aspects of educational work. Environmental problems are an important factor in our country's basic conditions and logically are one important aspect of education in socialist ideology. Thus, how to view China's environmental problems, how to understand China's national environmental conditions, and from which areas we should conduct environmental education with well-defined objectives are a new topic that we face. I offer here a crude discussion of this topic.

I. National Conditions and Understanding National Conditions

National conditions are the relatively stable and comprehensive objective and real situation of a country. They refer to those most basic and most important motive factors and restricting factors that play a decisive role in economic and social development. A country's national conditions often determine the basic characteristics and overall outlines of a nation's long-term development. National conditions include many aspects like a country's social system, economic, political, scientific, educational, and cultural and

ethical development conditions, geographic location, natural environment, resource conditions, and so on.

A profound understanding and correct grasp of national conditions is extremely important. In the larger sense, a correct understanding of national conditions is the basic foundation for formulating correct lines, principles, and policies and it is the primary question that concerns the success or failure of national construction. In one sense, the victory of China's new democratic revolution was precisely a victory of the people of the CPC led by comrade Mao Zedong in correctly understanding China's national conditions. In a smaller sense, correctly understanding our national conditions is the key to understanding and grasping reality and removing many ideological "knots". To know the way, one must first understand national conditions. Only by understanding what type of country our motherland actually is can one be a firm and sober patriot. Only by understanding our "family property" can we become correct masters.

Although national conditions exist objectively and are relatively stable, it is not easy to gain a true understanding of national conditions. We have profound lessons in regard to this question. In the past, for example, we only took note of China's vast territory and abundant resources and neglected our large population and small amount of land and poverty of materials in per capita terms. We only took note of our large population and great strength and ignored the fact that a large population requires more food, more jobs, and so on. This superficial understanding of our national conditions is an important factor behind the appearance of a whole series of mistakes in economic construction and social development.

II. The Contradiction Between Population and Environment Is the Most Important Factor in Basic National Conditions

The three most basic aspects of our complex national conditions are also the three most basic national conditions. First, the contradiction between our population and our environment and resources is becoming increasingly acute. Second, we have a weak economic and cultural foundation and underdeveloped forces of production. Third, our socialist political and economic system is immature and imperfect (in the initial stage). Of these three questions, the contradiction between our population and our environment and resources is the most important. The reason for this is that China is in an historical process of achieving socialist modernization, eliminating poverty and backwardness, and promoting progress in civilization. The contradiction between our population and our environment and resources always puzzles us and it is a restricting factor that we and our descendants will not easily ignore for a long time.

1. An excessive population is the first restricting factor for China's economic development. China has the largest population of any nation of the world, with 22.4 percent of the world's total population. Our characteristics in the area of population are a huge population base figure, which has now surpassed 1.1 billion people on the Chinese mainland.

The second is a fast rate of growth. Over 40 years, our population increased from 540 million to 1.13 billion, more than doubling. Third, our population is unevenly distributed, which includes an imbalance of our urban and rural populations and an imbalance between the south and east and the north and west regions. Nearly 80 percent of population lives in rural areas and over 90 percent of our population lives in southern and eastern China, which has 40 percent of our national territorial area. Fourth, our cultural quality is low, with 0.9 percent of China's total population having a college-level education and an illiteracy and semi-illiteracy rate of 20.9 percent. Some people have said that the population problem in China has become a "common denominator" that weakens every advantage and dilutes every achievement. There is some truth to this statement.

2. Resource shortages are a major impediment to the course of modernization in China. For a long time, we have consistently been intoxicated by an illusion of a "vast territory and abundant resources" and all types of "inexhaustible" resources. It is true in absolute terms that China does have a large territory and that we do have abundant resources. However, whether we are speaking of vast expanses of cultivated land and abundant mineral deposits bestowed by nature, or of the industrial and agricultural products created through the industriousness of our people, when "averaged" for the huge "common denominator" of our 1.1 billion population, the per capita values become "insignificant". Data show that per capita mineral resources in China are just one-half of the world average level. Per capita cultivated land is 1.36 mu, just one-third of the world average level. The forest coverage rate in China is just 12 percent, which is only two-fifths of the world average level. We hold 88th place worldwide in per capita fresh water resources, which are only one-eighth the world average level. Even more troubling is that the negative differential between our growing population and declining resources is becoming increasingly large. For the past several years, our population has grown by about 20 million each year whereas all types of resources have been reduced every year. Using only the example of cultivated land, there has been a reduction of 5 to 6 million mu each year. Research by a group of experts in the Chinese Academy of Sciences shows that, calculating on the basis of China's total land resources and forces of production at the present time, the rational population burden would be 950 million people. Calculated on the basis of the standard of providing sufficient clothing and food, the maximum theoretical burden would be 1.5 to 1.6 billion people. Given China's present population growth trend, China's population will surpass this limit before the year 2015. Natural resources are the foundation of human existence and development and resource shortages undoubtedly will pose comprehensive pressures and crises for society and become a major impediment to the course of modernization in China.

3. Ecological destruction and environmental pollution are the two most serious challenges that China will encounter. Overall levels of environmental pollution in China are equivalent to those of the severe period in the developed

nations during the 1950's and 1960's. China now discharges 35.4 billion tons of waste water each year but the treatment rate is just 32.2 percent. This leads to even greater shortages of water resources which are already in short supply and the direct economic losses arising from water pollution each year amount to 43.4 billion yuan. China discharges 8.5 trillion cubic meters of waste gas each year and leads the world in discharges of sulfur dioxide, carbon dioxide, and other harmful gases. A survey of 60 cities shows that the average daily concentration of total particulates in the atmosphere exceeds the state's grade 2 standards by 2.3 times and acid rain caused by discharges of sulfur dioxide and nitrous oxides is becoming increasingly severe in China. Acid rain has appeared over large areas in a vast region of southwest and south China and it is showing a tendency toward expanding. Climatic warming has already become apparent in northern China. The threat toward the ecology and environment in rural areas from farm chemicals, chemical fertilizer, and pollution from township and town enterprises is also extremely serious. At the same time, we cannot ignore ecological and environmental problems like an acute reduction in forests, degradation of grasslands, soil erosion, desertification, and so on. Our grasslands are being degraded at a yearly rate of more than 20 million mu, an area of 2.25 billion mu, equal to 15.6 percent of China's land area, is affected by soil erosion, and the area that has been desertified covers 176,000 square km and is expanding at a yearly rate of 1,560 square km. Environmental pollution and ecological destruction have already affected many areas of China's society, economy, and environment and these effects will become increasingly apparent as time passes.

These situations show that there has already been severe destruction of our natural resources and environmental support system, which are the foundation for the existence and development of the Chinese nationality and our subsequent generations. The space for the present and future generations to exist is becoming narrower and the environment in which we exist is becoming weaker. This basic national condition should become the starting point when we consider problems and deal with problems.

III. Focus on Environmental Education as Part of Ideological Education

Ideological education involves major systems engineering that uses the methods of setting forth the facts, discussing truths, and making comparisons of accounts to conduct positive ideological education for vast numbers of cadres and masses. We should include the content of environmental protection in ideological education, integrate with reality, and carry it out with well-defined objectives. The goal in environmental education is to make cadres and the masses understand the basic national conditions of China's environmental problems, increase their sense of crisis and sense of responsibility, consciously respect the state's environmental protection laws and regulations, establish excellent environmental ethics, work hard on conservation, build enterprise through arduous effort, and

devote all their efforts toward making China soar. The content of environmental education should focus on the areas listed below.

1. Acknowledge the status of environmental protection as a national policy, intensify understandings of environmental protection national conditions. China has two basic national policies, birth control and environmental protection. This is determined by China's basic national conditions. Environmental protection is a strategic question that concerns the entire situation in economic and social development. It has the qualities of temporal permanence and spatial broadness. As for its content, "one is protecting and improving environmental quality, protecting the physical and mental health of residents, and preventing the occurrence of variation and degradation in organisms due to the effects of the environment; the second is rationally utilizing natural resources, reducing or eliminating the entry of harmful materials into the environment, and protecting the restoration and expanded reproduction of natural resources (including biological resources) to benefit the productive activities of man". (ZHONGGUO DABAIKE QUANSHU—HUANJING KEXUE [Encyclopedia of China, Environmental Sciences] p 155). This shows us clearly that environmental protection is actually the readjustment of the relationship of man with the environment and resources and is the most important question that concerns China's basic national conditions. This is truly the basis for the party and government's determination that environmental protection is a basic national policy. Thus, we should guide them in clarifying this type of relationship in ideological education to intensify their understanding of China's basic national conditions and environmental protection work.

2. Acknowledge the present environmental situation, strongly advocate our nationality's spirit of building and enterprise through arduous effort. The problems of environmental pollution and ecological destruction exist objectively in China and we should tell cadres and the masses how things really are. At the same time, many of our current environmental problems are the result of mankind's tendency to seek pleasure and willful destruction such as destruction of the ozone layer by air conditioning, atmospheric pollution caused by automobile exhaust (photochemical smog has appeared in the United States as a result), abrupt reductions in forests and soil erosion due to wanton overcutting, and so on. China's national conditions determine that we cannot take the path of "high consumption". We can only select "energy conservation, appropriate consumption" as our path to modernization.

3. Conduct education on environmental ethics, cultivate the spirit of collectivism and patriotism. Patriotism and collectivism are not empty slogans. The environment and resources are the site of the interest of our entire nationality and all of mankind and the fate of the global environment and the fate of our motherland are closely interrelated with the fate of mankind, so a love of natural resources and protection of the ecological environment should be the rules for our behavior. We should consciously love nature and love every mountain and lake and

every blade of grass and every tree of our motherland. In this way, we will not damage the interests of the nation or the interests of all of mankind because of short-term interests or the interests of small groups, nor will there be willful pollution and destruction of the environment or willful hunting and killing of wild animals and plants.

4. Popularize knowledge of environmental laws, reinforce citizens' concepts of the legal system. Environmental protection laws and regulations are an important part of the socialist legal system and the state has already included popularization of environmental protection laws in its second 5-year plan for popularization of legal knowledge. Because of a variety of reasons, popularization of China's environmental protection laws is still very inadequate and people have a rather poor understanding of environmental laws, so there still much work to do in this area. Education concerning the legal system is an important aspect of ideological education. We should seize this opportunity, integrate with realities in all areas, selectively organize large numbers of cadres and the masses to study environmental protection laws and regulations, propagandize the nine new and old environmental management systems, and reinforce citizens' concepts of the environmental legal system.

Environmental protection is a highly comprehensive marginal discipline and the relationships of man with the environment and resources are very complex. It should be pointed out that environmental education as a part of ideological education is not systematic education in specialized knowledge, nor is it research on special topics. We are simply using education to enable cadres and the masses to gain a clear understanding of our basic national conditions and the status of environmental protection as a national policy, to understand that the relationship between man and the environment is a serious issue that concerns our nation's future and fate, to know each person's duties and obligations in environmental protection work, and to consciously participate in environmental protection work.

Policy, Management System for Environmental Protection Detailed

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[Article by Wang Yangzu [3769 2254 4371]: "Principles, Policies, and Management Systems"]

[Text] Since the First National Environmental Protection Conference in 1973, China has been doing environmental protection work for 18 years now. Through the practice of China's environmental protection workers, we have summarized a set of principles, policies, laws and regulations, and standards for environmental protection that conform to China's national conditions. They are:

1. Protecting the environment is a basic national policy in China;
2. Economic construction, urban and rural construction, and environmental construction require simultaneous

planning, simultaneous implementation, and simultaneous development to achieve the strategic principle for environmental protection of integrating economic benefits, social benefits, and environmental benefits;

3. "Focusing on prevention", "those who pollute being those who bring it under control and those who develop being those who protect", and "reinforcing management, using management to promote control" are the three basic policies in environmental protection;

4. The "Environmental Protection Law", "Water Pollution Prevention Law", "Atmospheric Pollution Prevention Law", and "Marine Environment Protection Law" along with "Detailed Principles for Implementation" and related "Regulations" of these laws as well as the administrative regulations for environmental protection promulgated by various departments;

5. 204 environmental quality standards, pollutant discharge standards, analytical methods standards, and so on;

In addition, we have also formulated eight environmental protection management systems and measures for an environmental protection objective responsibility system, comprehensive urban environmental improvement quantitative evaluations, construction project environmental impact assessment, construction project "three simultaneous activities", pollutant discharge fee collection, pollutant discharge licenses, scheduled control, and centralized pollution control. Environmental protection principles, policies, laws and regulations, and standards are the foundation for the formulation of these eight management systems, so conscientious implementation of these eight systems and measures is the same as concrete embodiment of adherence to environmental protection principles, policies, laws and regulations, and standards. I will now provide a further description of the relationship between the two.

A. Environmental protection objective responsibility system. Protecting the environment is a basic national policy in China and it should become a basic policy of every region and every unit. This means that it must become a basic provincial policy in each province, a basic municipal policy in each municipality, a basic county policy in each county, and a basic plant policy in each plant, and become a major aspect of work by leaders at all levels. Moreover, the "Environmental Protection Law" clearly stipulates that "local people's governments at all levels should assume responsibility for environmental quality in the region under their jurisdiction and adopt measures to improve environmental quality". "Units that create environmental pollution and other public hazards must include environmental protection work in their plans, establish an environmental protection responsibility system, adopt effective measures to prevent the creation of waste gas, waste water, residues, dust, noxious gases, and radioactive materials as well as noise, vibration, electromagnetic wave radiation, and other environmental pollution and hazards during production, construction, or other activities." Thus, local governments at all levels should

adopt the arrangements of establishing objective responsibility systems for the next level of government below them or for primary enterprise and business units. Practice has proven that this is an important guarantee for implementation of "basic national policies" and "responsibility for environmental quality in the area under their jurisdiction". This system was developed each year by urban governments on the basis of several facts in the area of environmental protection following the First National Urban Environmental Protection Work Conference in 1985 and has been extended in many provinces and municipalities throughout China.

B. Comprehensive control quantitative evaluation system for the urban environment. Because of the concentration of industry and population as well as the concentration of pollution in cities, they are the focus of environmental protection in China at the present time. To further implement this basic national policy in urban areas and make city governments and mayors take responsibility for urban environmental quality, adoption of this system since 1989 has played a rather substantial role in promoting urban environmental protection work. Comprehensive control quantitative assessments for urban environments involve 20 representative indicators in the three areas of reflecting urban environmental quality, industrial pollution control, and urban basic facilities construction. They are divided into different values according to different grades and a full score is 100 points. Each year they are divided into two levels for conducting quantitative evaluations. Evaluations are made for the 32 municipalities directly under the central government and cities that are the sites of provincial CPC Committees (with the exception of Lhasa City) and cities in key scenic and tourism areas. Evaluations are carried out for over 100 cities under the jurisdiction of provinces and key provincial cities in each province and autonomous region. The announcement of points and rankings beginning in 1989 has substantially shaken city governments. Prior to this, directors of environmental protection bureaus sought out mayors with administrative responsibility and requested reports on environmental protection work, but this was not easy to arrange. Now, mayors take the initiative in seeking out directors of environmental protection bureaus to make deployments for environmental protection work. To be able to make better achievements in the quantitative evaluations, many city governments also further divided up and implemented all of the evaluation indices in each prefecture and county, each relevant department, and key enterprises, which formed a situation in which everyone became involved and worked together on administration. This greatly spurred urban environmental protection work and construction of basic urban facilities. From the scores for 1990 and 1989 for the 32 key cities for which China conducted direct evaluations, there were improvements to varying degrees in all of the cities, which showed that there were overall advances in environmental protection work in these cities. Hubei and other provinces also replaced and added several indices to reflect natural ecological areas and conducted quantitative evaluations of comprehensive

environmental control for the prefecture and county governments under their jurisdiction.

C. Environmental impact assessment system for construction projects. This is an important measure for implementation of the basic policy of "focusing on prevention" as well as an important measure for controlling new pollution sources. Since the implementation of this system in 1979, environmental impact assessments have been conducted for over 2,000 large and medium-sized construction projects throughout China. This system has been included in the "Environmental Protection Law" and other relevant environmental protection regulations. Moreover, the relevant departments and commissions jointly issued the "Construction Project Environmental Protection Management Methods" for 1986 that made environmental impact assessments an indispensable procedure during the construction process for construction projects. Now, environmental impact assessments are now gradually making a shift from a focus on simple pre-assessments of pollutant discharge standards for construction projects to undertaking regional assessments for several projects, assessing the control of total discharges of pollutants, making review assessments after construction projects are completed, and other forms.

D. The "three simultaneous things" for construction projects refers to the system of simultaneous design, simultaneous construction, and simultaneous operationalization of facilities to prevent pollution and other hazards along with the main bodies of projects. This was the earliest management system for environmental protection work implemented in China, having been promulgated and implemented by the State Council following the First National Environmental Protection Conference in 1973. It is an important measure for adhering to the basic principle of "focusing on prevention" and the strategic principle of the "three simultaneous things" and "unification of the three types of benefits", and it has been included in the "Environmental Protection Law" and other environmental protection laws and regulations. Now, the implementation rate for the "three simultaneous things" for large and medium-sized construction projects has increased from 18 percent in 1976 to 100 percent.

E. Pollutant discharge fee collection system. This is an important measure for adhering to the basic policy of "those who pollute being those who bring it under control" and it is an effective economic measure for harnessing old pollution sources. This system has also been included in the "Environmental Protection Law" and other environmental protection laws and regulations. The State Council also promulgated the "Provisional Methods for Collecting Pollutant Discharge Fees" in 1982 and pollutant discharge fees are now being collected from nearly 300,000 enterprises throughout China. From the start of trials of the fee collection in 1979 up to the end of 1990, China collected a total of 11 billion yuan in fees. China has set aside over 7 billion yuan in capital subsidies from the pollutant discharge fees for harnessing key sources of pollution and comprehensive control measures, which is equal to about 15 percent of all capital spent on pollution control over the

period. About 2 billion yuan in capital subsidies have been spent on the development and construction of environmental protection activities themselves. In accordance with State Council Directive 10 issued in 1988, "Provisional Methods for Compensated Utilization of Special Pollution Source Control Funds", work on "shifting from allocations to loans" for environmental protection experiment subsidies is now being gradually extended throughout China. Gratifying achievements have been made in Hunan and other provinces in implementing a total shift from allocations to loans for environmental protection capital subsidies and in Shenyang City in trial work to establish an environmental protection investment company. The "Water Pollution Prevention Law" also provides for the collection of polluted water discharge fees from those who do not exceed polluted water discharge standards and work to collect polluted water discharge fees has been implemented in succession throughout China. To coordinate with work on trying out the establishment of a polluted water discharge licensing system, certain regions have also tried out the collection of total fees for units that control total amounts of pollution. To adhere to the basic principle of "those who pollute being those who bring it under control", several provinces have also tried the collection of natural ecological restoration fees for several development and construction projects.

F. Pollutant discharge licensing system. This is an important measure for adherence to the basic policy of "reinforcing management" and a successful experience in foreign countries in controlling pollutants, and it has been included in the "Detailed Principles for Implementation of the Water Pollution Prevention Law". It is established on the basis of controlling total amounts of discharged pollutants and its objective is improvement of environment quality. Moreover, it sets out different control requirements according to the amounts of pollutants discharged, the different functional water bodies into which pollutants are discharged, and different discharge standards that can be adopted by polluting units. For this reason, it makes management of pollution sources more scientific. Trial work on licenses for the discharge of water pollutants is drawing to a close in 18 cities and the results have been very good. They have provided a focus for pollution control and a direction for control, and total amounts of pollutants being discharged have declined gradually while there have also been continual improvements in environmental quality. There are now 2,400 key polluting units in 107 of China's cities and counties that have been issued polluted water discharge permits or temporary permits. Trial work on permits for discharges of pollutants into the atmosphere have also begun in 17 cities during 1991.

G. Scheduled control measures. The "Environmental Protection Law" and other relevant environmental protection laws and regulations clearly stipulate that for "already-completed facilities whose pollutant discharges exceed standards, especially enterprise and business units that cause serious environmental pollution, people's governments at all levels can decide upon scheduled control." This is an important measure for using a combination of plan management and legal measures to spur the control of

old pollution sources and improve environmental quality in urban and rural areas. Nearly 40,000 industrial waste water treatment facilities have now been built in China and upgrading has been carried out on 200,000 boilers and 42,000 industrial kilns and ovens. This has played a positive role in controlling toxic and hazardous materials discharged along with waste water and in reducing urban soot and dust pollution. Many of these measures were completed via scheduled control. For several enterprises with irrational deployments and serious pollution and which are unable to carry out control, measures like closure, shutdowns, combination, conversion, moving, and so on should be adopted.

H. Centralized pollution control measures. This is the overall name given to control measures and management methods that can be adopted to change regional environmental quality, and they are important measures for adherence to the basic policy of "reinforcing management". In controlling pollution by coal soot in cities, for example, besides removing soot and dust from boilers, "five changes and one establishment" comprehensive measures should be adopted. These are coal gasification, centralized heat supplies, coal shaping, afforestation, and ground surface hardening, and establishing soot and dust control regions. In controlling water pollution, for example, we must focus on work in these seven areas: protection—protecting centralized drinking water sources; catching—improving urban water drainage lines, especially primary cut-off water drainage pipelines; controlling—industrial waste water control must be integrated with centralized control of urban waste water; management—issuing pollution discharge permits to reinforce management of pollution sources; using—regions with water shortages should do good work on recovering and using waste water after treatment; diversion—regions with abundant water can divert clean water sources to improve the water quality of urban rivers and lakes; discharging—in cities along rivers and the coast, waste water can be scientifically discharged after treatment into rivers and the sea for treatment. In controlling urban noise pollution, for example, there can be a focus on establishing noise index regions in conjunction with focusing on work to prevent industrial noise, traffic noise, social and household noise, and construction noise. Treating solid wastes (including urban garbage), for example, can be based on the principles of reduced amounts, no hazards, and conversion to resources in conjunction with a focus on collection, transport, and comprehensive utilization, treatment, disposal, and other links. In summary, centralized pollution control does not stop with controlling pollution at fixed sites. Instead, it involves systems engineering for pollution control and improvement of environmental quality over a large area.

To summarize, the 18-year history of environmental protection in China has produced suggestions on how environmental protection work in China should be carried out and led to the formulation of a set of relatively complete environmental protection principles, policies, laws and regulations, and standards and to the formulation of eight management systems and measures on how to do it. This is

a crystallization of practice in environmental protection work in China and is precious wealth for us. We certainly must integrate with real conditions in each location, resolutely implement the eight systems and measures, and continually perfect and develop them to do environmental protection work in China even better.

Report Outlines China's Environmental Protection Achievements

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[Report issued by the State Report Routine Editorial Group: "Summary of the 'People's Republic of China Environment and Development Report' (Conclusions)"]

[Text]

I.

In the long course of the history of human development, the glorious Chinese nationality has created a brilliant and magnificent culture and has a 5,000-year history of development from ancient times to civilization, and it has made enormous contributions to mankind's progress and prosperity.

Since the founding of New China in 1949, under the leadership of the CPC and People's Government, the people of China have relied on all nationalities in fostering the spirit of reliance on their own efforts and arduous struggle to change the impoverished and blank old China into a preliminary thriving and prosperous socialist nation.

Since the 1980's, China has implemented reform and opening up. This has been a period of burgeoning development in economic construction and of outstanding achievements in China, and it has laid a relatively solid foundation for China's achievement of socialist modernization.

During 10 years of reform and opening up, China's GNP [gross national product] has doubled and risen to eighth place in the world. There has been a significant improvement in our national strength and obvious improvements in the people's livelihood. In the area of industry, China has formed an independent industrial system with a rather complete set of categories and our output of several primary industrial products has leapt into the advanced ranks of the world. China holds fourth place in steel output, crude oil output, and electricity output and is the world leader in coal and cement output. In the area of agriculture, China is the world's leader in grain, cotton, and meat output. On less than 7 percent of the Earth's cultivated land, China has basically solved the food and clothing problems of 22 percent of the world's population, which is an epoch-making thing in itself. There have also been flourishing developments in China's educational, scientific, cultural, health, and sports activities. As our economy has developed, people's consumption levels have risen substantially, the clothing and food problems of all of

China's people have basically been solved, and the lives of some residents have even begun moving toward relative prosperity.

During 10 years of reform and opening up, we have also promoted the comprehensive and effective development of environmental protection work in China. Over the past decade, calculated at comparable prices, China's GNP has grown at an average annual rate of 9.6 percent and we have been able to maintain our environmental quality in a relatively stable state. There have been reductions in the discharges of industrial waste water and amounts of solid wastes generated per 10,000 yuan in industrial value of output and there have been substantial improvements in the standards attainment rate for industrial waste water discharges, the purification rate for industrial waste water, and the comprehensive utilization rate for industrial solid wastes. Initial results are being seen in comprehensive improvement of the urban environment and in a situation of many-fold increases in coal consumption, several cities have achieved significant reductions in atmospheric particulates and there have been no increases or even slight decreases in total suspended particulates. There have been some improvements in the environment of bodies of water in some cities and the water quality in the trunk channels of primary river systems and some marine areas has basically been maintained in an excellent state. There have been definite improvements in the residential conditions and residential environments in cities and our vast rural areas. Afforestation of grasslands and afforestation and construction of coastal areas have progressed very quickly, especially the three north China shelter forest project systems, which have been called the "ultimate world ecological project". By 1988, they had completed 9.44 million hectares of artificial afforestation and turned China into a "green 10,000-li Great Wall". Over the past 10 years, as a result of everyone doing their duty in planting trees, over 10 billion trees have been planted in China and the retained area of artificial forests has reached 38.30 million hectares, among the world's leaders. The household energy resource situation of our 800 million peasants has been improved and destruction of natural vegetation has been reduced. By 1989, China had establish 606 natural protection regions of various ecological categories covering a total area of about 40 million hectares that have effectively protected several endangered species.

II.

The reason that China has been able to make achievements in environmental protection during the course of developing is that environmental protection has been made a basic national policy of socialist modernization and construction. We have formulated and implemented a series of effective principles and policies, and formed a Chinese-style environmental protection route that conforms to China's national conditions. In outline, it is:

1. Adherence to the strategic principle of simultaneous planning, simultaneous implementation, and simultaneous development in economic construction, urban and rural construction, and environmental construction, adherence to the principle of unification of economic

benefits, social benefits, and environmental benefits, and along with economic construction and social development, we have protected the ecology and environment and striven to promote sustained, stable, and coordinated development of the national economy.

2. Adherence to the inclusion of environmental protection in plans and long-term programs for development of the national economy and society, implementation of macro management, regulation, and control under the guidance of state plans, and achievement of unified planning, comprehensive equilibrium, and coordinated development of environmental protection and all construction activities.

3. In development of our national territory, adherence to the principle of combining development, utilization, improvement, and protection, formulation of the "National Territory Overall Program Outline" and regional and river basin improvement programs, and planned, goal-based, and gradual improvement on all of China's national territory on the basis of trials in key regions.

4. Adherence to family planning as a basic national policy. Focusing on the overall requirement for "controlling the amount of population, improving the quality of population" in adopting and implementing several family planning policies and measures, lowering population birth rates, and reducing the pressures of population growth on the environment.

5. Establishing environmental protection strategies centered on rational utilization of natural resources in industry, agriculture, and other industrial departments, resolutely making protecting the environment and natural resources a basic condition for developing production, and implementing economic and technical policies conducive to protecting the environment and natural resources.

6. Establishing and perfecting environmental protection organs at the state and all local government levels to gradually form an environmental management system in which environmental protection departments at all levels of local government are the primary administrators, and in which there is a division of labor among the relevant economic management departments at all levels with unified management, intercoordination, and a division of labor in cooperation, and in which each has its own responsibilities.

7. Adherence to the three main policy systems of reinforcing management, focusing on prevention, and those who pollute being those who control it and those who develop being those who protect to motivate the initiative, enthusiasm, and creativity of the central and local governments, economic departments, enterprises, and all the popular masses for protecting the environment.

8. Promulgating and implementing environmental protection laws, regulations, articles, and standards at appropriate times to establish environmental protection on a legal basis; continually improving, coordinating, and promoting all types of environmental management systems

and measures to move environmental management gradually toward being systematic, standardized, and scientific.

9. Reinforcing scientific research on environmental protection, organizing major projects to attack key S&T problems; striving to develop the environmental protection industry. Establishing environmental protection on foundation of S&T progress and relatively advanced environmental protection technology and equipment.

10. Establishing and perfecting environmental monitoring networks and information networks, immediately gaining an understanding of changes in environmental quality and pollution situations. The state and local governments issue scheduled environmental situation reports and accept supervision by the popular masses.

11. Doing good propaganda and education on environmental protection, continually improving the environmental knowledge and scientific and educational quality of all people, making major efforts to train specialized personnel in the environmental sciences and technology.

12. Developing international environmental cooperation and exchanges, promoting the development of the causes of world environmental protection, and human progress.

China is a developing country. To make China prosperous and achieve socialist modernization, we must always place development of our national economy in a primary status and all work must be carried out centered on economic construction. Thus, environmental protection must be an important part of the development of our national economy and society and should always be focused on the overall goal of socialist modernization and construction and provide even better service to promoting economic development and improving the quality of life for our people. At the same time, we must also prevent environmental pollution and ecological destruction during economic development. At the present stage, we must give full consideration to the real situation in China's economic development and national strengths, do environmental protection and environment construction according to our capabilities, and coordinate the rate of environmental protection and environmental construction with the rate of growth in our national economy over the same period.

We believe that by continually summarizing experiences and lessons in actual work, continually developing and perfecting an environmental protection path with Chinese characteristics, and following this route, we will certainly be able to deal with the relationship between the environment and development and promote smooth progress in modernization and construction.

III.

China is bearing a heavy population burden and is developing its economy and carrying out construction in a situation of a relatively backward economy and S&T. As China's population grows, our economy develops, and people's consumption standards continue to rise, there will be growing pressure on the ecological environment. In

China's future development, we will still face serious challenges from environmental problems.

1. China's agricultural ecology and environment are facing greater pressures than any other nation. China's population continues to grow, there have been reductions in our cultivated land area every year, and we have relatively serious problems of soil erosion, desertification, waterlogging, and aridity of grasslands, and so on, and it is still hard to alleviate the situation of serious overloading of the agricultural ecology and environment in the short term.

2. The shortage of China's forestry resources is still acute and the ecological functions of our forests are still rather weak.

3. There is an extremely acute shortage of water resources in north China, especially in the cities of north China and in regions with concentrations of industry and mining in the middle and lower reaches of the Liao He and Huang He, the Hai He river basin, coastal areas of Shandong, arid regions of northwest China, and several plateau regions. There have been long-term shortages of water for production and household uses in cities and rural areas and serious water crises have appeared or may appear in some regions.

4. With the development of the economies of coastal regions and development and utilization of marine resources, there has been a tendency toward growing pollution of the marine environment. Over-fishing has led to a tendency toward declining offshore fish resources and the genecology.

5. It will be hard to change China's energy resource structure dominated by coal for some time to come. In the absence of breakthroughs in combustion technology and coal conversion, China's atmospheric pollution and acid rain threats may become more severe.

6. China's course of industrialization has proceeded quickly from a low starting point and relatively backward S&T and management levels. The tasks involved in preventing industrial pollution are extremely arduous and there are substantial investment problems, so it will be hard to achieve a basic solution to the situation of lagging pollution control.

7. As China's economy develops, the course of urbanization may be accelerated. Given our inadequate financial resources, it will be hard to make substantial changes in the situation of backwardness in building basic facilities for the urban environment within the short term. There may be local improvements in the environmental situation of cities, but overall it will be hard to make basic improvements.

IV.

The 1990's are an important period for socioeconomic development and environmental protection in China and the tasks involved in achieving coordinated development of our environment and our society and economy are extremely arduous.

The Chinese government's plans and objectives for the next decade for coordinated development of our society and economy with the environment are:

1. In the development of China's society and economy over the next 10 years, on the basis of major efforts toward improvement of economy benefits and optimization of the economic structure, China's GNP should grow at an average rate of about 6 percent a year and our people's living standards should rise from having sufficient clothing and food to a relatively prosperous level.

2. By the year 2000, as our economy develops, we should achieve basic control of environmental pollution, improve the environmental quality of key cities, and reduce the trend toward degradation of the natural ecology.

To achieve these goals, besides continuing to adhere to and perfect existing principles and policies, we should also focus on strengthening measures in these areas:

1. Formulation and implementation of industrial policies, economic policies, and technological lines conducive to coordinate development of our society and economy with environmental protection.

2. Continued implementation and perfection of environmental protection policies and measures, working on the two areas of reinforcing environmental management and increasing S&T inputs, preventing environmental pollution, and protecting the natural ecology.

3. As our national strengths are gradually reinforced, gradual and appropriate increases in the proportion of investments in environmental protection and environmental construction.

4. On the basis of equality and mutual benefit, using broad-ranging international cooperation to obtain capital and technical assistance.

V.

In today's world, mankind is facing a series of global environmental problems: climatic warming, destruction of the ozone layer, acid rain, desertification, disappearance of forests, species reductions and extinction, acute soil erosion, insufficient fresh water, pollution, seawater pollution, and so on. These are growing challenges to the sustained development and conditions of existence of mankind.

The vast Third World is now struggling to solve the clothing and food problems of its people and the prosperity of its nationalities. To overcome their poverty, hunger, and serious debt burdens, many developing countries have been forced into excessive development and utilization as well as selling of their own increasingly inadequate resources at low prices, which has exacerbated the degradation of their ecology and environment.

Global environmental destruction and the poverty of the majority of its population have become the two greatest and closely interrelated problems that mankind now faces.

The question of how to reform the existing unfair economic order and reduce the differential between development levels in poor countries and rich countries, and how to improve the global environmental system and solve the environmental problems that concern the fate of mankind under the prerequisite of ensuring the expanded economic and social development in developing countries have become the most urgent topics facing both the developing nations and the developed nations at the present time. They are also the most important topic for discussion and resolution in the 1992 "United Nations Environment and Development Conference".

Solving these problems will require coordinated and consistent efforts by all nations and regions of the world and the development of more effective cooperation. Economic development and environmental protection are an important part of establishing a new international order. Concretely speaking, we feel that they should include these aspects:

1. All nations, whether large or small or poor or rich, have the right to participate in international environmental protection and development activities, and the large nations have unique responsibilities and duties in this area;

2. All countries have the right to decide upon economic development and environmental protection strategies based on their own conditions and all countries have permanent decision-making rights regarding their natural resources and biological species. At the same time, international cooperation that is conducive to the achievement of sustained development is also encouraged;

3. Consideration should be given to the interests of countries that have different natural conditions and different courses of development and international environmental legislation should fully reflect the needs of the developing nations, which have most of the world's population;

4. The primary historical and present responsibility for creating environmental degradation at the present time should be clarified and at the same time should embody the principles of fairness and differential responsibility;

5. Sufficient attention should be given to the environmental problems facing developing countries and they should be solved immediately;

6. Developing nations should reinforce their own environmental protection efforts and international society should provide the required capital and technical assistance to these nations to achieve a basic strengthening of the ability of developing nations to participate in global environmental and development cooperation.

History and the present time have told us that all countries require a peaceful and stable international situation for economic development and environmental protection. At present, the world is at the intersection of old and new situations and the situation is wavering and unstable. The facts have proven that large-scale wars and regional conflicts threaten mankind's existence and cause significant environmental destruction. Thus, we advocate respect for

the following principles in international affairs: respect for the decision-making rights and territorial integrity of nations, mutual non-infringement, mutual non-interference in internal affairs, equality and mutual benefit, and peaceful coexistence. These are the fundamental conditions for achieving sustained economic development and improving the environment.

China is a developing country and we are facing the threat of global environmental problems as well as various types of environmental problems that appear in the course of economic development. As it has done in the past, China will strive to do good environmental protection work in China during economic development. We feel that since China is a large developing nation, solving China's environmental problems is the responsibility of the Chinese people and future generations as well as a major contribution to the joint activities of all people as well as our duty to international society.

The Chinese government actively supports the environment and development conference to be held by the United Nations in 1992. We hope that this conference will be one that can spur international environmental cooperation and promote development and international economic cooperation. It should not only discuss climatic changes, destruction of the ozone layer, and other global environmental problems, but should also conscientiously study the ecological and environmental problems facing developing countries and adopt solid steps to resolve them.

International society faces many problems in the environment and development realms and the tasks are extremely arduous. However, if all countries can embody the spirit of being in the same boat and helping each other and making common efforts toward cooperation, in the era of the flourishing development of the new technological revolution of the present day, human society can and will be capable of solving the global environmental problems it faces and leave a beautiful Earth for future generations.

Daya Bay Nuclear Plant Waste Not To Be Dumped in South China Sea

92WP0128A Hong Kong *SOUTH CHINA MORNING POST* in English 10 Dec 91 p 6

[Article by Kathy Griffin]

[Text] The director of China's National Environment protection Agency yesterday reassured Hong Kong that waste from Daya Bay nuclear power station would not be dumped in the South China Sea.

Professor Qu Geping was speaking following reports from Taiwan that China and Taiwan were discussing plans to establish a dump for low-level radioactive waste off the coast of Guangdong.

He said he was not aware of these plans and a strategy had already been drawn up for disposing of Daya Bay's waste.

"Within Daya Bay nuclear power station, we have a place especially for [storing] the waste," Professor Qu said through an interpreter.

Once enough waste was stored, it would be transported under internationally acceptable conditions to the north-east where China has established nuclear dumping grounds.

He said the most important thing facing them at Daya Bay was to ensure the equipment was installed safely, which he thought would be the case despite the fact part of the plant was completed without some of its supporting rods.

"The Chinese Government pays good attention to the safety of Hong Kong because after 1997 Hong Kong will be part of China," he said.

Professor Qu was speaking after the Pollution on the Metropolitan Environment conference, which he is attending as an observer.

Environment protection is one of the basic state policies of the Chinese Government, along with family planning, and is included in five-year plans, he said.

Expenditure will increase from 47 billion yuan (HK\$67.77 billion) in the current five-year plan which ends in 1995, to 80 billion yuan in the next five-year plan.

But he admitted this would not be enough to stem environmental damage in China, where air pollution causes serious health and other problems in cities.

Achievements of Three-North Shelter Forest Project Assessed

OW0102224392 Beijing *BEIJING REVIEW* in English No 3, 20-26 Jan 92 pp 23-25

[Unattributed report]

[Text] Parts of China's northeast, north and northwest ecology were among the world's most seriously devastated. Severe climatic conditions such as sand and wind storms and soil erosion greatly hampered efforts to improve the living standards of local people. To protect the environment, raise the land utilization rate, promote a steady growth of agriculture and animal husbandry and develop the economy of the "three-north" areas, the State Council in 1978 solicited opinions widely and, after a series of detailed feasibility studies were conducted, decided to establish the "three-north" shelter-forest project.

Planning

The project, underway in northwest China, the northern part of north China, and the western part of northeast China, involves 551 counties (banners, cities and prefectures) in Shaanxi, Gansu, Ningxia, Qinghai, Xinjiang, Shanxi, Hebei, Beijing, Tianjin, Inner Mongolia, Liaoning, Jilin and Heilongjiang and covers 4.069 million square km. It was planned to establish in this area a shelter-forest system to prevent wind, fix sand, conserve water and soil and protect farmland so as to bring about a balanced ecology in the northern part of the country.

The project was divided into three stages. The first stage, from 1978 to 2000, was subdivided into three phases. This first phase was from 1978 to 1985, the second phase from

1986 to 1995 and the third phase from 1996 to 2000. During this period, a total of 21.8 million hectares of trees would be planted.

Achievements

The construction of the first phase of the "three-north" shelter forest project was started in 1978 and completed in 1985. During the period, 6 million hectares were planted with trees. During the first three years (1986-88) of the second phase of construction, 3.255 million hectares of trees were planted and, between 1978 and 1988, 9.257 million hectares of trees were planted.

The construction of the "three-north" shelter belts was conducted under extremely harsh natural conditions and the achievements made over the years have been followed closely by environmental specialists. They want to know how many of the publicly announced 9.257 million hectares of trees planted in recent years have been preserved. The State Planning Commission and the Ministry of Forestry arranged for forestry experts to survey the forest resources in the "three-north" shelter areas in an effort to precisely determine the reserve area of the afforestation programme.

The survey showed that 6 million hectares of trees were planted during the first phase (an eight year period), the forest reserve area totalled 4.59 million hectares and the forest conservation rate was 76.5 percent. During the second phase, 3.255 million hectares of trees were planted over a three-year period, the forest reserve area of young trees reached 2.829 million hectares and the rate of conservation hit 86.92 percent. A total of 9.257 million hectares of trees were planted during the 11 years. The forest reserve area reached 7.42 million hectares and the conservation rate 80.16 percent.

Such a high rate of forest coverage is unique in the history of afforestation efforts. The achievement was all the more extraordinary because of the difficulty of planting trees and bushes in 7.42 million hectares of the "three-north" area.

Dramatic ecological, economic and social benefits are evident. In the past, there was low, unstable agricultural production. The 11 million hectares of farmland which used to be hit by wind, sand and dry, hot wind are now protected by the forest. Grain output thus increased from 10 to 30 percent. The 9 million hectares of desert and semi-desert grasslands have been protected. Grass production increased by over 20 percent. The 7.33 million hectares of land devastated by soil-erosion is now being restored to its vitality. The amount of silt that flows into the Yellow River, China's second biggest river, has been reduced by 10 percent and more than 6 million hectares devastated by sand are now on the ecological rebound. Since trees have a long life span, the many benefits of the forest will be evident beyond our generation. Indeed, as time passes, the "three-north" shelter forest project will play an increasingly important role in China's ecology.

A Successful Experience

The grand scale of construction of the "three-north" shelter forest project, the harsh working conditions, the rapid construction and the remarkable success to date are unprecedented in China's forestry history. The success is due to the following:

- The initiative of various sectors was mobilized and the planting of trees and effort to green the land were supported by all of the people. By making use of China's abundant labour and allowing those who plant trees to own them, some 1.1 billion workdays were devoted to building the "three-north" forest.
- From initial planning to design, afforestation and construction, the focus was not only on bringing about ecological benefits but also on improving living standards for local people. In addition to planting trees for purely ecological benefits, trees for timber and fuel have also been planted. In this way, a diversified economy has been developed.
- A variety of measures have been used, including close planting on hillsides and the use of aircraft to reach distant locations.

Both forestry experts and the Chinese public are confident that the "three-north" shelter forest project will be a model for similar efforts around the world.

Debate on Three Gorges Dam Project Continues

Effects on River Ecology

*HK3001101292 Beijing CHINA DAILY in English
30 Jan 92 p 4*

[Second in a series of five articles by staff reporter Gao Anming: "Will Dam Affect River Ecology"]

[Text] Few people who have been to the Three Gorges will ever forget the spectacular scenery of towering cliffs and grotesque rocks with the whirling currents and rapids below them.

The canyons, lying between Sichuan and Hubei provinces, have been considered the most gorgeous stretch of the Yangtze River that runs 6,300 kilometres from west to east China. They topped the list of scenic spots selected by tourists at home and abroad late last year.

However, some people charge that some of this natural splendour, along with dozens of ancient buildings and graves, will be buried under a massive body of water when a long-planned 185-metre-high super dam is erected across the river at Xiling Gorge, the eastern-most gorge.

Others disagree. They insist that most hills along the river are 1,000 metres high, and that the limited rise in the water level will not substantially affect the scenery as a whole. Also, they say, the ancient relics can be moved or rebuilt, and tombs can be excavated before the reservoir starts to store water.

While admitting some adverse environmental effects, supporters of the dam say that its ecological benefits outweigh disadvantages.

As the debate over the construction of the colossal dam heats up once again following decades of postponement, government officials, experts, scholars and public figures have been airing their views on the project whose price tag at the end of 1990 was 57.6 billion yuan (\$10.5 billion) and which will take 18 years to complete.

From 1986-88, 55 experts were invited by the government to study the effects of the reservoir on the environment. Following field inspections and discussions, they reached a consensus and signed the final report that gave the go-ahead to the project.

The report admits that the natural environment of the reservoir area has already been damaged and is worsening. Forest coverage has dropped from 22 percent in the 1950s to 12 percent, with saplings making up 90 percent of the trees. One-third of the farmland is reclaimed from slopes of more than 25 degrees, and soil erosion is on the increase.

The proposed Three Gorges reservoir, about 600 kilometres long and 1.1 kilometres wide, has an area of 1,084 square kilometres, with a normal water storage level set at 175 metres above sea level. It will submerge 632 square kilometres of land, including 23,800 hectares of farmland and 5,000 hectares of orange orchard. Some 726,000 local inhabitants (a 1985 figure) will have to be resettled.

The report says that the middle reaches of the Yangtze River will benefit most from the project while most of the disadvantages will be felt in the reservoir area.

The project will substantially alleviate the destruction that a devastating Yangtze flood may bring to the densely populated and economically advanced low land in Hubei and Hunan provinces. The fact that the dam will give a feeling of security to 32 million locals living under the direct threat of flood will be a benefit in itself.

Experts say that the severity of floods has its cycle. They warn that a catastrophic deluge is more likely with the passage of time as no major flood has occurred since 1954, when 33,000 people were killed and 10 billion yuan (\$1.83 billion) lost in direct damages.

The Three Gorges hydropower station will generate 84 billion kilowatt-hours of electricity annually. If the same amount of power is produced by thermal stations, however, some 40-50 million tons of coal will have to be burned, bringing heavy pollution to the atmosphere and the surroundings.

The reservoir will improve the climate in some areas and regulate the volume of the river to ensure better conditions for shipping, the report says. Besides, it will alleviate the silting-up of Lake Dongting in Hunan Province, which has shrunk so drastically during the last decades, due to sediment, that it fell from being the largest lake in China to being the third.

The report admits that the typical scenery of the Three Gorges will be affected, as the planned reservoir is twice as

wide as the natural river course, and a tranquil body of water will take the place of the current torrents. Some argue, however, that such a loss may be compensated by the creation of new tourist attractions along small tributaries previously inaccessible by boat.

Critics also warn that the resettlement of more than 1 million displaced inhabitants further up the hills will add problems to the already fragile environment of the area.

Apparently heeding their alarm, the report dismisses the traditional economic pattern that more land be reclaimed to increase grain yield. Instead, it proposes to augment agricultural investment to raise per unit output, and to expand the planting of citrus, cash crops and trees, introduce animal herding and develop tourism. The subsequent lack of grain supply may be made up by food imports from other regions.

The report emphasizes, however, that any resettlement-related decision must be made strictly in line with a prerequisite that the ecological environment improves for the better. The existing practices of wanton tree felling, plantation on steep slopes and the development of industries that cause serious pollution must be abandoned.

The report does not rule out the possibility that the reservoir may induce earthquakes, as has happened to 120 out of 35,000 reservoirs in the world, for reasons yet to be figured out by scientists. But it says that the tremors will not be strong enough to cause damage to the dam. Similarly, there are hundreds of potential landslide sites in the area, but none is close enough to the dam to do substantial harm.

The report concedes that some fish accustomed to living in torrents may vanish from the reservoir, that the habitat of some rare aquatic creatures such as the Chinese dolphin and the Chinese sturgeon may be severely affected, and that the breeding season of most fish will be delayed for three weeks due to a drop in water temperature. But such losses can be made up or lessened by fish farming in the reservoir and remedial measures such as artificial breeding.

The report says that there is disagreement on whether the reduced annual fluctuation of the river will raise the underground water level and turn low-lying farmland along the middle reaches of Yangtze into swamps. Some categorically dismiss such a possibility while others insist that as much as 1.1 million hectares of land could be affected.

Some critics insist that advocates of the dam have so far failed to give due consideration to the long-term effect of the giant reservoir on the environment and its social repercussions, and that the current feasibility study has been limited only to technical subjects. They argue that these have been lost in the discussions of the project's benefits. But beyond their criticisms, they have failed to spell out what their alternative is, nor have they expounded in unequivocal terms what the long-term consequences and social reverberations would be.

Resettlement Issue

*HK0202043092 Beijing CHINA DAILY in English
1 Feb 92 p 4*

[Third in a series of five articles by staff reporter Gao Anming: "Resettlement Remains a Sticky Issue"]

[Text] Tough and controversial as it is, the trial resettlement of residents in the Three Gorges reservoir area has been "successful" and "welcomed by the locals," according to an official in charge.

Li Boning, head of the Economic Development Office of the Three Gorges Area under the State Council, said the central government has spent 110 million yuan (\$20.3 million) since 1985 on trial resettlement programmes in the 19 counties in Sichuan and Hubei provinces that will have parts of their land submerged if the 185 metre-high dam is erected across the river.

Instead of the previous one-time-only compensation pattern for the displaced population, Li said the government has introduced a development-oriented programme, meaning it will invest in and allocate to farmers high-yielding farmland and cash crops, such as orange orchards and mulberry and tea plantations.

Li said the government has built 5,000 hectares of orange orchards, the same amount as will be submerged by the project. The final goal is to ensure one hectare of commercial woodland and half a hectare of high-yielding farmland for every displaced farmer.

Some 1.13 million locals will be forced out of their homes if the colossal project, designed to directly protect 32 million lives along the low-lying middle reaches of the Yangtze, is completed in 2008.

China has relocated 10 million people during the last four decades as it built 86,000 reservoirs. As many as one-third of them, however, were poorly resettled, due to "leftist" policies in the past and a lack of overall planning and funds.

This is one of the most important reasons why some sociologists and scholars doubt if this time a good job in this regard can be done.

Reasons

Critics say the area's worsening ecological environment, its over-population, the residents' poor educational standard and a lack of communications links and other investment facilities will create a tough job for the government in its resettlement endeavour, no matter how meticulously it may have worked on the plan.

They insist initial success in the resettlement programme will not necessarily lead to a smooth transfer of people on a larger scale, and that even if the whole process is completed, there is due to be social repercussions in the long run, as has happened to most involuntary reservoir-related resettlement in the past.

Besides, the critics are not satisfied with insufficient participation by sociologists in the project's feasibility studies.

In 1986, the central government invited 27 experts to re-examine the resettlement of the affected population amid increasing doubts and criticism on the issue. Following two years of studies, most experts reached a consensus that the government is capable of resolving the problem if it guarantees sufficient investment, works out proper policies and employs the latest technology in the process. They signed the final report that gave the green light to the project.

In an article based on the report, the head of the 27 experts, Zhang Yue, said the proposed reservoir would submerge 632 square km of land in 19 cities and counties, on which 725,500 people resided in 1985. It will bury 23,800 hectares of farmland and 5,000 hectares of orange orchards. It will also flood over 13 cities and county seats, and 657 factories with fixed assets totalling 820 million yuan (\$152 million).

Zhang wrote that 54 percent of the affected population are urban residents, who could resume their occupations after their cities are rebuilt. As the area of the hometowns that will be inundated is largely limited, and most affected factories small in size, there would be fewer problems with their resettlement.

Affected Areas

Zhang said none of the 331 affected townships in the 19 counties would have all their land submerged, and the flooded farmland ranged from a mere 0.5 to 4 percent of the total in the respective counties. Nearly 90 percent of the displaced farmers would therefore live and work in their own townships.

Zhang dismissed an assertion that the deteriorating environment of the reservoir area would not be able to support the added population, as he attributed the region's poverty to overpopulation, inadequate investment, misuse of agricultural resources and a lack of industries.

He said the area's environmental capacity for human settlement could be substantially increased and the ecological balance preserved if sufficient funds, technology, information, talents and materials are channeled in and distributed in an integrated development of various economic sectors.

For example, field and aerial surveys found that one-third of the waste mountain slopes could be reclaimed and half the available farmland is low-yielding. The feasibility study report suggests that 7.5 percent, or 19,300 hectares, of waste slopes be reclaimed and built into orange orchards, and 8,400 hectares of low fertility farmland be improved. This could well support more than half of the affected rural population.

Zhang wrote that the planned 18-year-long construction of the colossal project in itself, and the subsequent development of the area, could create thousands of non-farming jobs.

The report says 30 percent of the dam's planned 36.1 billion yuan (\$6.6 billion), budget, or 11 billion yuan (\$2

billion), would be spent on resettlement-related programmes. Considering inflation, the price for the dam soared to 57.6 billion yuan (\$10.5 billion) last year.

Of the 11 billion yuan, 25.9 percent would go to rural resettlement and 29 percent to urban reconstruction. This ensures 6,045 yuan (\$1,120) for each farmer, including 2,100 yuan (\$389) in compensation for destroyed houses and 3,945 yuan (\$730) for creating jobs, and 8,500 and 7,500 yuan (\$1,550 and 1,370) per capita respectively for city and county dwellers.

Zhang Yue did not touch on psychological issues that a massive population transfer could provoke.

The feasibility report proposes further research into the consequences of the massive human resettlement on the ecological balance, which it admits is still lacking.

It also urges the government to grant preferential policies in food imports, taxation, foreign exchange management and material distribution for the reservoir region.

Projected job distribution of the 519,000 rural residents to be resettled in the reservoir area by the year 2008.

	[# of people]	[percentage]
Industries	136,600	26.32
Construction	15,000	2.91
Farm produce processing	10,000	1.93
Tertiary trade	29,200	5.63
Agricultural production on reclaimed and improved farmland	275,000	52.99
Farming behind protective dykes along the reservoir	25,500	4.91
Fish farming and animal husbandry	27,600	5.32

Projects	For every 10,000 kilowatts of installed capacity		For every 100 million kilowatt-hours of electricity generated annually	
	Hectares of farmland submerged	Number of people resettled	Hectares of farmland submerged	Number of people resettled
Three Gorges Reservoir	14	410	28	863
31 large and medium size reservoirs planned or under construction	26	431	60	1,000
118 large and medium size reservoirs	124	1,220	289	2,845
Reservoirs built	234	2,120	535	4,820

Source: Report of the 1986-88 feasibility study

REGIONAL AFFAIRS

Malaysian Premier Scores Developed Countries on Tropical Forest Issue*BK2701053192 Kuala Lumpur BERNAMA in English 0433 GMT 27 Jan 92*

[Text] Singapore, Jan 27 (OANA-BERNAMA)—Member countries of the Association of Southeast Asian Nations (ASEAN) should welcome the Indochinese states as members of the group subscribing to its Treaty of Amity and Cooperation should those countries wish to do so, Malaysian Prime Minister Dr. Mahathir Mohamed said Monday.

He said with the Cambodian problem almost resolved, ASEAN must now transform the adversarial stance which characterised Southeast Asia in the past into new constructive relationships.

"It is not an accident that the Southeast Asian countries of the ASEAN group are among the most dynamic in the world," he said in his address at the opening of the fourth ASEAN summit here.

ASEAN groups Brunei, Indonesia, Malaysia, the Philippines, Thailand, and Singapore.

Dr. Mahathir said ASEAN must therefore take the initiative to reorganise its relations with the Indochinese countries by beginning to establish close and positive relations with them, both, bilaterally and as a group.

He also called on ASEAN to promote and foster the concept of a zone of peace, freedom, and neutrality as well as a nuclear weapons free zone.

On the issue of environment, Dr. Mahathir said there was unfortunately undue focus on the tropical forest and its role in renewing the supply of oxygen, the preservation of flora and fauna, and the ecological balance.

Noting that it was the rich 20 percent of the world population, who accounted for 80 percent of the greenhouse gas emission, he said if forests could save the world from the greenhouse effect, then the stress should be on a massive greening of the world.

In apparent reference to the West, Dr. Mahathir said that with the wealth of the rich and the technology at their command, it was entirely possible to plant and cover even desert areas with trees.

He said one issue, totally ignored, was the fact that forest fires cause greater damage to the environment than controlled logging. In addition, developing countries did not have the financial and technological capability to effectively handle forest fires.

"Certainly, more forests can be saved by preventing forest fires or putting them out quickly than by boycotting the export of tropical timber or advocating that forest dwellers remain in the forest, eating monkeys and suffering from all kinds of tropical diseases," he added.

Referring to the claim that tropical forests are a common heritage, Dr. Mahathir said: "We dispute this, for we have a better claim to our forests than those who claim to own Antarctica."

"But if the world is so concerned about depleting tropical forest and think they have a right to it then they should do something about forest fires in the tropics," he added.

Malaysia Proposes International Fund for Maritime Ecological Safety*BK2701113692 Kuala Lumpur BERNAMA in English 0844 GMT 27 Jan 92*

[Text] Singapore, Jan 27 (OANA-BERNAMA)—Malaysia Monday proposed that an internationally sponsored fund be set up to maintain maritime security and protect marine resources in the Straits of Melaka.

The Straits of Melaka is bordered by Indonesia, Malaysia and Singapore.

Malaysian International Trade and Industry Minister Rafidah Aziz said the international community should be collectively responsible for the protection of marine resources and the ecological wellbeing of the sea lanes.

She said ASEAN countries, with the sea surrounding much of their territory, had to do something to maintain maritime security in a broader sense.

The Association of Southeast Asian Nations (ASEAN) groups Brunei, Indonesia, Malaysia, Thailand, the Philippines and Singapore.

Rafidah was speaking to reporters when asked to elaborate on Prime Minister Dr. Mahathir Mohamed's opening remarks at the fourth ASEAN summit that the international community should contribute towards the cost of keeping the sea lanes free and safe.

Dr. Mahathir had said that the number of ships passing through the Straits of Melaka had multiplied many times and they often carried dangerous cargo such as oil and chemicals.

The prime minister had also mentioned piracy as another problem and asked whose responsibility it was to keep the international sea lanes safe.

Rafidah said the proposed fund could be similar to the international pooling of resources to fight forest fires.

"We have already international funding for reafforestation to sustain management and now we are taking one step further to maritime security and maritime conservation," she added.

She said marine resources, ecological wellbeing of the maritime sea lanes and marine parks would be damaged if an oil spillage occurred, and the cost to clean the pollution would be high.

Touching on the East Asia Economic Caucus (EAEC), Rafidah said she was happy to hear three summit leaders categorically supporting the EAEC.

Philippine President Corazon Aquino, Thai Prime Minister Anan Panyarachun and Singapore Prime Minister Goh Chok Tong expressed support for the EAEC in their opening remarks at the two-day summit Monday.

"I never expected that. To me that is hardly lack of development. That is development of the highest order," she said.

She said the first indication of support for the EAEC came from the ASEAN Chamber of Commerce and Industry when its president made very clear mention of support for the idea.

"The ASEAN business community and the ASEAN private sector see the benefit of ASEAN consulting with its neighbours particularly on the issues of trade as would be brought about by the EAEC, and that to us is the best endorsement of all," she said.

South Pacific Environment Group To Move Headquarters to Western Samoa

BK2801104492 Hong Kong AFP in English 0956 GMT 28 Jan 92

[Text] Noumea, Jan 28 (AFP)—The South Pacific Regional Environment Program (SPREP) will be set up at its new headquarters in the Western Samoan capital of Apia within a few weeks, an official communique said here Tuesday.

SPREP director Vili Fuavao said in the statement that the program's assistant director, New Zealander Donald Stewart, had been working in Apia since the beginning of the month.

The program was under the auspices of the South Pacific Conference, headquartered in Noumea, until meetings here in July and in Tonga in October decided to make the SPREP independent and site it in Western Samoa.

The SPREP will be responsible for drawing up a five-year action plan for environmental protection from such hazards as rising sea- levels, dangerous waste dumping, marine pollution and damage to coral reefs.

CAMBODIA

Future Threat From Foreign Logging Concessions Viewed

92WN0272A Bangkok THE NATION in English 19 Nov 91 p A4

[Article by Anchalee Worrachate: "Forests Might Become Casualty of Peace"]

[Text] The first casualty of peace in Cambodia could be the country's rich forest reserves, largely untouched over the last two decades of war, revolution and upheaval.

Cambodia is in desperate need of foreign exchange for its reconstruction but both Thai and Cambodian officials have expressed fears that the country will fall easy prey to foreign loggers.

In this bustling border trading port in southwest Cambodia, huge stacks of freshly cut planks lie awaiting shipment to Thailand.

Dock workers were busy loading wood onto already heavily laden ships, preparing to set sail for Thai ports in Klong Yai district a few km to the northwest.

Since a nationwide logging ban was imposed in Thailand in 1989, the country's logging industry has looked to neighbours for timber, and Cambodia's rich forests look set to become a major source of supply.

At least three Thai companies, one in a joint venture with Japan, currently have logging concessions in different areas in Cambodia, including some controlled by the communist Khmer Rouge guerrilla faction.

In Koh Kong province, a Thai logging company has been granted a concession allowing it to cut 20,000 cubic meters of timber a year for an annual payment of two million dollars.

Koh Kong Governor Rung Pramkeysorn said in an interview with AFP that he is aware of the consequences of rapid deforestation and has tried to limit concessions in the province.

"We are selective in giving concessions. We only allow logging in certain areas but bigger deals are usually referred to Phnom Penh," he said.

"Cambodia needs money. That's why we give the concessions, but we will make an effort to limit them," he said.

But with peace arriving in Cambodia it is not certain how long the effort to limit concessions will last or for how long authorities in Cambodia will be able to resist the temptation of quick profits.

At least 10 Thai companies are currently courting the Phnom Penh government for logging deals and look likely to win contracts, according to one well-informed source.

"It is easier to make deals now that peace has come. People know the situation. They don't have to worry about the different factions. They know who is in charge and who to contact," one Thai businessman said.

At least eight more border checkpoints are to be opened in this area next year for hauling logs into the neighbouring Thai province of Trat.

Thai logging companies and Cambodian authorities have been discussing the possibility of pushing a road through linking Trat and Cambodia's highway four in Kompong Som province.

Thai loggers proposed that the Cambodian government pay for the road construction with timber, according to one well-informed source familiar with business dealings along the border.

The governor of Trat, Amorn Anandtachai, urged Cambodian authorities to map out a conservation and reforestation plan before it is too late and the forest completely cut.

"I'm not saying that we should stop felling trees in Cambodia completely. We need their timber, but that doesn't mean we should cut it indiscriminately," said Amorn, a self-proclaimed conservationist.

Deforestation in Cambodia will affect Thailand too, Amorn said.

"If Cambodia loses its forest, we'll lose our rain and the fruit-growing industry in provinces near the border will disappear," he said.

"I want to ask the Cambodian government to start drawing up a conservation and reforestation plan. Otherwise, the forest will all be gone before they even know it," he said.

Sihanouk, UNDP Discuss Nation's Deteriorating Natural Environment

*BK0702062992 Phnom Penh SPK in English
0409 GMT 7 Feb 92*

[Quotation marks as received]

[Text] Phnom Penh, (SPK) February 7—Representatives of the United Nations Development Programme [UNDP] met with his Royal Highness Prince Norodom Sihanouk at the royal palace in Phnom Penh on Saturday, 25 January 1992, to express their growing concern about Cambodia's deteriorating natural environment.

In the Paris peace accords signed last October, all four Cambodian parties to the agreement agreed to let the United Nations send a peace-keeping force to Cambodia and to let the UN administer five key ministries prior to democratic elections scheduled for early 1993. With the subsequent loss of foreign aid to the resistance factions and the loss of an estimated 60 million of eastern bloc aid [as received] to the State of Cambodia, all sides have turned to timber exports as the main source of funds for generating operating revenues and paying salaries.

"Rough estimates suggest that current timber exports, both legal and clandestine, are in excess of the country's sustainable timber yield by a factor of four to eight," explained Rajeev Pillay, UNDP's deputy resident representative. "UNDP would like to develop mechanisms in cooperation with the international donor community that will allow a drastic reduction of logging operations to take place, particularly in the export sector. Essentially this could represent an "environmental cease-fire" if supported by the members of the Supreme National Council and financially by the donor community."

At present, in the State of Cambodia, there are fewer than one forestry employee per 1,000 square kilometers of forest in its eight most heavily-forested provinces.

During the weekend meeting, Prince Sihanouk invited representatives of the four members of the Supreme National Council [SNC] to express their views on the environment. He then endorsed several UNDP proposals to address some of the country's more immediate environmental concerns. UNDP will establish an environmental advisory group that will, among other functions, assist the SNC and the State of Cambodia to assess the development

and environmental implications of both assistance and investment proposals. UNDP is also exploring the possibility of working with other donors to establish a Cambodia environment fund for a variety of environmental programmes, including the creation of a forest guard corps.

It is proposed that the World Wide Fund for nature (WWF), one of the world's premier conservation organizations, manage the environmental advisory group and, subject to funding, provide training for a forest guard corps. In its pilot phase, the corps might number about 750 carefully-screened and trained former soldier drawn from the demobilized troops of the three resistance factions and the State of Cambodia. These will be integrated with a larger number of villagers, forestry graduates, and former refugees.

"The demobilization of about 100,000 troops and the return to Cambodia of some 65,000 refugee families from camps in Thailand will pose a significant threat to Cambodia's forests and fertile wetland areas," explained WWF's Indochina programme officer, John Dennis. The guard corps, operating under the patronage of H.R.H. Prince Sihanouk, would provide employment for people who would otherwise become wood cutters or land-poor farmers who follow the new logging roads into the forests."

HONG KONG

Environmental Project Spending Estimates Tripled

92WN0261A Hong Kong SOUTH CHINA MORNING POST in English 9 Dec 91 p 1

[Article by Kathy Griffin]

[Text] The Government has tripled estimates for environment works spending next year, but it will still not be enough to build a massive sewerage disposal network.

The Planning, Environment and Lands Branch has been told that \$3.7 billion will be given for crucial environment capital works projects, after earlier being told only about \$1.16 billion would be allocated.

Corresponding cuts in spending on other works projects would be necessary.

The new amount represents a 42 percent increase on current financial year's works spending of \$2.6 billion.

Officials say the amount was increased because of the outcry raised in October after the Government announced it would back out of funding an \$8.28 billion sewerage disposal network.

The network, together with a \$12 billion project to improve sewers, is necessary for cleaning Victoria Harbor's badly polluted waters.

The capital works grant, for projects spread over the next five years, does not include money for building the network although some cash has been set aside for design work and hydrological studies.

More than \$2 billion of the grant will be spent on new landfills, considered the top priority because current landfills are almost full, and about \$1 billion on sewerage improvements in Hong Kong Island South and Tolo Harbor.

If the extra funds had not been found, the territory might have found itself with nowhere to dump its rubbish.

The Deputy Secretary for Planning, Environment and Lands, Mr. Martin Lewis, said he was heartened by what he considered to be a commitment at the highest level of the Government to continue with the environment program.

"I am very satisfied, but when you take into account what is available across the board, then there is every reason for us to feel more satisfied than others," he said.

"There just isn't a bottomless pit for funding for new capital works."

The Environmental Protection Department originally asked for \$9.75 billion, which is understood to be greater than the entire capital works budget for all new non-Port and airport Development Strategy projects.

Included in the original request were projects not due to be contracted out until 1993 or 1994. These are mostly connected with building the sewerage network, which would gather all the sewage from around Victoria Harbor, treat it and dispose it through a 35-kilometer pipe in the South China Sea.

But Mr. Lewis said: "The preparatory work [studies and designs] is to be done. We're doing what we should do and can do with regards to the sewerage disposal strategy."

Mr. Lewis and his colleagues are studying other ways of funding the scheme, including privatizing it or charging for sewage disposal. A report will be made to the Environmental Pollution Advisory Committee next month.

The grant still needs to go through several channels before it is formally confirmed in the Financial Secretary's budget speech in March, but Mr. Lewis said they had been given an "intention" of environment spending so they could start planning for the 1992-93 financial year.

The Director of Environmental Protection, Dr. Stuart Reed, was encouraged by the grant and remained convinced that the sewerage disposal network would be built because the preparatory work was going ahead.

The system was originally intended for commissioning in 1998 but now there is no deadline for its completion.

Dr. Reed said: "The Drainage Services Department is doing engineering investigations to allow detailed design to go ahead and we're doing the hydrological survey to determine the final location of the outfall. We haven't a fixed implementation data, but I don't think there's any doubt about a continuing commitment to implement the strategy."

But Mr. Gordon Ng Ting-leung of the Conservancy Association said it was a waste of time to design and plan the strategy without a schedule for its construction.

"We regard an integrated plan as essential to improving the water quality in Hong Kong," he said.

They were also worried about the status of the 35-kilometer deep sea tunnel, a concern shared by Dr. John Hodgkiss, a reader in biology at the University of Hong Kong and long-time chronicler of the territory's water pollution.

Dr. Hodgkiss said the studies would be meaningless unless they included full-scale investigations into the positioning of the tunnel, which require Chinese Government approval. Not all of these have been funded yet because some of the work is not due to start next year.

JAPAN

Report Alleges 'Inadequate' Hazardous Waste Disposal at U.S. Bases

OW3001135892 Tokyo KYODO in English 1249 GMT
30 Jan 92

[Text] Yokohama, Jan. 30 (KYODO)—A report commissioned by a U.S. House of Representatives committee claims the handling of hazardous wastes at U.S. military bases in Japan is inadequate, a Yokohama-based antinuclear group said Thursday.

The multinational group, Pacific Campaign To Disarm the Seas, said it has a copy of a report presented by an environmental restoration panel in which it is claimed the number of hazardous waste disposal points at bases in Japan is undetermined.

The panel was dispatched to the Pacific region by the U.S. House of Representatives Committee on Armed Services.

The report said environmental protection is not covered under the current Status of Forces Agreement between Japan and the United States and regulation of hazardous waste in Japan is not "as far along" as environmental regulation in regard to air and water pollution.

A spokesman for the U.S. bases in Japan was not immediately available for comment on the report.

The report praised air and water pollution measures at the bases in Japan but said hazardous waste disposal falls short of U.S. standards.

It said the panel was unable to document all sites but recorded caves housing drums of waste and three other places already accounted for at Yokosuka Naval Station in Kanagawa Prefecture and one disposal point at Kadena Air Base in Okinawa Prefecture.

The report estimated the cost of the cleanup at Kadena as 200,000 dollars.

It is the first time environmental issues at U.S. bases in the region, including the Philippines, have been the subject of such a report.

The report did not specify the contents of the hazardous wastes in most instances it documented.

However, it said that at one unspecified base in Japan, the water table is polluted by the organic solvent trichloroethylene.

"The potential cost of Department of Defense (DOD) environmental activities in Japan is difficult to project because the number and extent of contaminated sites at DOD bases is unknown and cost data for DOD environmental compliance and safety projects is incomplete," the report said.

U.S. Tuna Ban Threatens Japanese Plans for Philippines Processing Center

*OW3101143392 Tokyo KYODO in English 1340 GMT
31 Jan 92*

[Text] Manila, Jan. 31 KYODO—A new U.S. ban on Philippine yellowfin tuna could hurt the plans of a major Japanese fishing cooperative to make a southern Philippine city an international tuna processing center, local trade officials and tuna canners said.

The ban, which went into effect Friday, will likely discourage investment to set up multimillion dollar canneries and processing plants in the city of General Santos, they said.

The Japanese cooperative, the National Federation of Fisheries Cooperative Association (Zengyoren), has said it plans to divert its tuna catch to General Santos, where some of its member canners would set up the facilities and, it is hoped, make the area an international tuna processing center.

The trade officials said Japan is one country likely to be affected by the U.S. ban, since its canning industry processes tuna imported from the Philippines for export to the United States.

The ban is in line with the U.S. Marine Mammal Protection Act, which bans the importation of yellowfin tuna and tuna products from 15 countries, including the Philippines.

Komeito Unveils Environmental Proposals for June Earth Summit

*OW0102081592 Tokyo KYODO in English 0755 GMT
1 Feb 92*

[Text] Osaka, Feb 1 (KYODO)—The No. 2 opposition party Komeito unveiled Saturday a proposal for environmental protection featuring a penalty tax on pollution. Komeito Chairman Koshiro Ishida said the 10-point proposal has been prepared for presentation at the United Nations-sponsored Conference on Environment and Development (UNCED), also known as the Earth Summit, in Brazil in June.

Ishida, detailing the proposal at a news conference, said the party's "Earth Charter" calls for the creation of an international taxation system designed to preserve the global environment. The system includes a penalty levy against acts of environmental destruction, he said.

Komeito was the first Japanese political party to propose the idea. It is also studied by the leadership of the ruling Liberal Democratic Party as part of an international contribution tax. The concept has also been informally reviewed by the Finance Ministry and the Environment Agency.

Komeito additionally proposed the establishment by the UN of an independent environmental preservation council endowed with funding sources. The party also calls for the creation of a fund for environmental preservation in developing nations and a system for disposal and recycling of pollutants.

SOUTH KOREA

Environment Ministry Takes Action Against 305 Firms

*SK2401094092 Seoul YONHAP in English 0844 GMT
24 Jan 92*

[Text] Seoul, Jan 24 (YONHAP)—The Environment Ministry took administrative measures against 305 companies found contaminating the environment in December last year, a Ministry spokesman said Friday. They were among the 2,690 companies surveyed in the month.

It lodged complaints against 143 of them and the rest were ordered to shut down, suspend operations or improve their waste treatment facilities.

Most companies were caught dumping pollutants above the legal limit or installing treatment facilities without due permission.

Choheung Chemical Industry Co. discharged waste water with a biochemical oxygen demand of 186 ppm, exceeding the legal limit of 150 ppm.

Hyundai Petrochemical Co.'s Daesan plant in South Chungchong Province was warned for failing to make daily checks of its antipollution management.

Doosan Electro-Materials Co., under fire for dumping water contaminated with phenol into the Nakdong River last year, was ordered to remove exhaustion facilities it had installed without permission.

1991 Air Pollution Levels in Major Cities 'Acceptable'

*SK2701100392 Seoul YONHAP in English 0935 GMT
27 Jan 92*

[Text] Seoul, Jan. 27 (YONHAP)—The amount of dust and sulfur dioxide in the air in Seoul, Pusan, Taejon, Kwangju, Incheon and Taegu fell to acceptable levels last year due to an active drive to substitute liquefied natural gas (LNG) and low-sulfur oil for traditional fuels, the Environment Ministry reported Monday.

Levels of ozone, produced by a mixture of nitrogenous compound and sunlight, and acid rain were almost the same as in 1990, according to a Ministry analysis of air pollution in 1991.

To perform the research, the Ministry measured six pollutants such as sulfur dioxide, nitrogen dioxide and dust using 68 automatic detectors in 31 cities across the country, it said.

The average level of sulfur dioxide was highest in Seoul at 0.043 ppm and lowest in Kwangju at 0.017 ppm, both below the Korean Government's environmental standard of 0.05 ppm.

Levels of sulfur dioxide, the main substance in air pollution, were below the standard for the first time since measurement started in 1980.

Kuro-Tong, an industrial area in western Seoul, recorded the highest average of sulfuric acid gas and also had the highest single measurement at 0.372 ppm on Jan. 9 last year, the Ministry said.

Dust was measured at an average 134 micro grams per cubic meter in Pusan and 68 micro grams in Taejon, both figures below the annual average of 150 micro grams per cubic meter for the first time since calculation started in 1984.

The Ministry attributed the plunge to the expanded use of LNG and low-sulfur oil. An estimated 2.66 million tons of LNG and 86.26 million tons of oil were consumed last year, up 16 percent and 13 percent, respectively, over 1990.

Ozone levels rose in five major cities other than Pusan but were still under the annual average standard of 0.02 ppm. The maximum was gauged at 0.014 ppm in Pusan.

Acid rain remained at the same level as in 1990 because the increase in nitrogen dioxide offset the decrease of sulfuric dioxide, the Ministry explained.

Carbon dioxide and hydrocarbons, causes of photochemical smog and acid rain, were increasing with the growing number of cars.

Officials Say Exporters May Suffer From Montreal Protocol

SK3001021992 Seoul THE KOREA HERALD in English 30 Jan 92 p 6

[Text] South Korean exporters may be dealt a severe blow when member nations of the Montreal Protocol begin to restrict trade of ozone-destructive products in May, Economic Planning Board officials said yesterday.

Korea plans to apply to join the protocol at the end of February. Membership procedures take 90 days and would be completed just before the restrictions begin May 27.

The 74-party protocol bans the import of products that emit halon and chlorofluorocarbons (CFCs) from non-member nations. A list of banned items includes refrigerators, freezers, water coolers, air conditioners and aerosols.

The list was circulated by the UN Secretary-General on November 27 and enters into effect May 27. Protocol members have one year from that day to complete the procedures to ban imports from non-members.

Data on Korean exports of these items are unavailable, the EPB officials said, but domestic sales are estimated at \$65.45 million.

When products that use these substances are included, the market is \$5.2 billion to \$6.5 billion, they said.

Furthermore, when the United Nations Environment Program meets in Rio de Janeiro in June, it is to discuss concluding framework conventions on climate change and biological diversity.

These conventions seek various restrictions on carbon dioxide emissions and biological resource depletion that are certain to affect Korea's petroleum, petrochemical, steel, transport and other energy-related industries, the officials said.

"Joining the Montreal Protocol will solve only half of the problem," said one EPB official.

There are two sides to the issue—the export side and the domestic side.

Joining the protocol will prevent an immediate ban on imports of Korean products by other member nations, but in the long run, Korean manufacturers must drastically change their methods away from using halon and CFCs, he pointed out.

"The general consensus in the government was that the repercussions from the import ban are far greater than the internal effects and that we have to act quickly," he said.

Major Project To Improve Water Quality on Nation's Four Largest Rivers

SK0702003892 Seoul THE KOREA TIMES in English 7 Feb 92 p 3

[Text] Over one trillion won has been earmarked this year to improve the quality of water through the construction of extensive waste treatment and sewage facilities and repairing worn-out pipelines.

According to the Environment Ministry yesterday, the plan is a part of its efforts to bring the quality of water in the upper reaches of the nation's four largest rivers including, the Han and Nakdong, up to grade 1.

A total of 1.247 trillion won, the second portion of a 3.52 trillion won fund created last year, will be funneled into the project, ministry officials said.

They said the ambitious project is in line with the ministry's policy priority on the need to provide safe potable water across the nation in face of a series of water pollution incidents last year.

The main item for the plan is the construction of additional sewage and waste treatment facilities with 663 billion won, enhancing the sewage treatment ratio from 33 percent to 36 percent.

Another 326.8 billion won will be invested into the reparation of worn-out pipelines and related water transportation facilities and 22.5 billion won for the purification of water in the lower reaches of rivers, the officials elaborated.

When completed, the number of final-stage water treatment facilities will reach 72, and that of agricultural and livestock waste treatment centers 16, they explained.

THAILAND

Law on Environment Drafted; New Agency To Be Set Up

92WN0201A Bangkok NAEO NA (LOK THURAKIT SUPPLEMENT) in Thai 23 Oct 91 p 9

[Unattributed report: "Ministry of Science, Technology and Energy To Be Renamed, Given Responsibility for the Environment"]

[Text] Mr. Phaichit Uathawikun, a minister attached to the Office of the Prime Minister, said that a law had been drafted to protect the environment which contained 103 clauses; it would be ready to present to the Committee for Economic Analysis for consideration soon.

When the law was put into effect, a new environmental agency would have to be set up, and the name of the Ministry of Science, Technology and Energy would be changed to the Ministry of the Environment, Science and Technology. As for the funds for environmental activities a portion, 4 billion baht, would come from the fuel fund derived from excise taxes and earmarked for correcting environmental problems.

Mr. Phaichit said that the importance of this law was that it would specify areas for soil conservation and areas where the environment was to be protected. The law included conservation measures in the form of tax concessions, and a fund was to be set up to improve the environment and the quality of life. In addition to funds from the fuel fund a portion of the budget was to be earmarked for these purposes. These funds would be used for various units, both governmental and private, which worked to conserve the environment. In the future power would be delegated to the provinces for environmental work.

Reducing the taxes collected for the fuel fund from the production of unleaded gasoline by 12 satang per liter had been agreed to by the National Fuel Policy Commission but would have to be submitted to the cabinet again for approval. This measure was needed to encourage greater use of unleaded gasoline. It would allow fuel dealers to reduce the price of unleaded gasoline further.

Mr. Phaichit said that allowing the price of cooking gas (LPG) to float was being considered; data was being studied to see what the effect would be on consumers. Government price subsidies for cooking gas distorted the price and kept the price from reflecting reality. In addition to ending price subsidies for LPG, they were also studying the possibility of ending price subsidies for asphalt. The

government was a large consumer of asphalt, and if price controls were ended, it would have to pay a higher price.

Soil Degradation Problems Reviewed

92WN0201C Bangkok SIAM RAT in Thai 29 Nov 91 pp 1, 14, 16

[Unattributed report: "Providing Information to Farmers To Improve 200 Million Rai of Degraded Land"]

[Excerpts] [passage omitted] Mr. Sitthilap Wasuwat, director of the Land Development Department, announced on 28 November that more than 200 million rai [0.4 of an acre] out of a total of 321 million rai in the country were being utilized for various activities. On the 200 million rai being utilized there were many problems with the soil. The Land Development Department had been searching constantly for ways to correct the problems. It was essential that the government provide services and support because of the dangers from incorrect land use which could adversely affect the people and the environment.

The director said that the problems on the 200 million rai being utilized were as follows: (1) problems related to six important types of agricultural use on 182 million rai (2) a lack of organic material on 182 million rai (3) erosion on 107 million rai (4) inappropriate use of 30 million rai (5) the invasion of about 31 million rai of permanent forest land and 30 million rai of national forest reserve. [passage omitted]

As for ways to correct the moderate to serious erosion on 107 million rai, the director explained that a soil and water conservation system had been set up on 1.4 million rai or about two percent of the land with problems. The government would have to provide services and support for this because it was a problem which affected the environment and the people.

Chao Phraya River Cleanup Program Initiated

Japan To Provide Study Funds

92WN0210B Bangkok NAEO NA in Thai 4 Dec 91 p 3

[Unattributed report: "Thailand Reaches an Agreement with Japan to Restore the Chao Phraya"]

[Text] In the morning of December 3 Mr. Niyom Niyanon, the director of the Department of Public Works, signed an agreement with representatives of the Japanese Government for a grant to conduct a study to develop a plan for a sewage treatment system for the lower Chao Phraya River. The Japanese Government delegation was led by Mr. Kunio Iohimura, who also signed the agreement.

This was done because government policies had targeted the need to prevent and treat sewage in particular on the Chao Phraya River from Chainat Province down to the Gulf of Thailand where the problem of sewage was reaching a crisis and would be difficult to correct. The Department of Public Works of the Ministry of Interior, which was directly responsible, had foreseen the problem

and had been asking for assistance from the Japanese Government through the Department of Technical and Economic Cooperation since 1959. Finally they received the grant from the Japanese Government to conduct a study to develop a plan for a sewage treatment system. On 25 November a team of five experts was sent to conduct an initial study on the methods and the terrain. It coordinated with other units involved such as the Department of Irrigation, the Department of Industrial Labor and the secretary-general of the National Environmental Commission.

After the initial study the Sanitary Engineering Division of the Department of Public Works met and reached an agreement that the plan was to cover the area from Chainat Province to Nonthaburi Province. They developed a plan to take care of the sewage for eight cities in the lower Chao Phraya River Basin including: Chainat, Sing Buri, Lop Buri, Ang Thong, Bangbua Thong in Nonthaburi Province, Pa Mok in Ang Thong Province, Sukhaphibanprachathipat and Khukhot in Pathum Thani Province, and Sena in Ayuthaya Province.

After the surveying is done and the plan is completed, the Japanese government will use the initial results to estimate the amount of aid, which is expected to be at least 50 million baht. The detailed surveys which are part of the plan will require about 21 months and will begin in March 1992.

Cabinet Approves Funds for Projects

92WN0274A Bangkok *THE NATION* in English
4 Dec 91 p A2

[Text] The fight against worsening water pollution in the Chao Phraya River received a Bt29 billion boost yesterday when the Cabinet approved a budget for long- and short-term projects proposed by Office of the National Economic and Social Development Board.

The Cabinet approved a total of Bt756.52 million for short-term projects, of which about Bt251.25 million will be used to set up water treatment plants for government hospitals.

Under the short-term programme, the government will encourage industrial factories and other work places close to the Chao Phraya River to install water treatments plants by proposing a reduction in electricity fees for those who use such plants.

And Bt44 million will be spent on publicity campaigns to provide information to the public.

A further Bt 40.47 million has been allocated for the dredging of waterways.

The long-term project for the Chao Phraya River will cost about Bt28.72 billion, most of which will be spent on building water treatment plants in five areas of Bangkok and in provinces which are close to the river.

Several case studies will be conducted, including one on the possibility of declaring building-control zones for river

banks or canal banks so that pollution of the river will not be worsened by waste water from buildings.

The Cabinet also approved a proposal for the private sector to take part in an organization to be set up to oversee the condition of the river.

Nation's Hazardous Waste Problems Reviewed

92WN0274B Bangkok *THE NATION* in English
14 Jan 92 p B14

[Article by James Fahn: "Hazardous Waste Has No Place To Go"]

[Excerpts] When an explosion rocked a warehouse at Klong Toey port early last year, the leaking chemicals billowing toxic smoke caused serious illness among nearby residents. [passage omitted]

The national Hazardous Waste Management Plan completed in 1989 reported that a total of 161,937 kilograms of toxic substances had been shipped to the port and were being stored there because the local consignee had either not claimed the goods or had never even existed.

This kind of dumping is one reason why environmental groups are so concerned about the import and export of hazardous materials. But in fact it is only a small part of the overall problem of toxic waste in Thailand.

And Thailand does have a problem. The report estimates that roughly two million tonnes of hazardous waste—including oils, organic sludges, acid and alkaline wastes and heavy metal sludges—are now generated each year. And with limited disposal facilities available, much of this ends up dumped in uncontrolled sites, illegal landfills, canals, rivers and even farmland.

The amount of dangerous waste produced by Thailand is doubtless subject to question. Some experts think the figure mentioned above is too high. But this is largely due to disagreement over what types of waste are actually hazardous.

There is no doubt, however, that the amount is growing, and that it already far exceeds the country's ability to dispose of it properly.

Indeed, the increasingly hazardous nature of Thailand's pollution is among the indicators of structural change in the economy. Over the past decade, the share of output value produced by industries which generate hazardous waste has grown from 29 percent to 58 percent. If current trends continue, the report estimates that in five years the country will be producing 3.5 million tonnes a year, and by the next decade almost six million tonnes.

Seventy-five percent of the hazardous refuse produced by households, hospitals and industries is generated in the greater Bangkok area, where around 90 percent of the hazardous waste-producing factories are located.

The Ministry of Industry established the Bang Khuntien Waste Treatment Facility in 1988 to handle heavy-metal contaminated waste water and solid wastes produced by up to 300 small and medium-sized factories, primarily

those which deal with electro-plating. In 1990, 50,000 tonnes of hazardous and toxic waste from 270 factories were treated there, although the facility has a capacity of up to 100,000 tonnes per year.

The ministry has plans to build four more treatment plants, one each in Ratchaburi, Chonburi, Saraburi and Rayong. The Budget Bureau has already approved a combined investment of B1979.74 million for the first three, which should be capable of processing nearly 200,000 tonnes of waste a year.

Construction sites for the first two facilities have already been selected; they are expected to be operational by 1994. The Saraburi plant will be opened two years later. And a feasibility study for the Rayong plant should be undertaken this year.

Even once these are completed there will still be a serious shortage of disposal capacity. Some waste will be accommodated by landfill, and some large companies operate their own treatment facilities, but no doubt a good deal of illicit dumping will continue.

All the new facilities will be run by the private sector on a leased basis, as the Bang Khuntien plant does now. A private company has leased it from the Department of Industrial Works (DIW) for five years and is responsible for all collection, transport, treatment and disposal of waste. To cover costs, it levies a fee—based on the type and quantity of waste to be treated and on the distance it must be carried—on companies that send it their waste.

Reportedly, the operation is profitable, although the fee structure makes it less lucrative than a conventional commercial operation. As incentive for small and medium-sized factories which produce hazardous waste to use the plant, the DIW charges them a fixed rate of 70 percent of the treatment costs regardless of whether companies send their waste to Bang Khuntien.

The DIW is not the only authority which licenses industrial operations: the Industrial Estates Authority of Thailand (IEAT) performs this role for those companies which operate on industrial estates. But while the IEAT provides centralized waste water treatment facilities on its estates, none of them currently has facilities for disposal of hazardous waste. This responsibility will apparently be assumed by the waste treatment centres now being planned by the DIW.

None of these centres, however, will be able to process PCBs, which Egat is now exporting to France to be destroyed (see article above). Such disposal requires special technology to make sure that waste from the facility is not itself dangerous. The Tredi plant in France, for instance, reportedly cools down airborne emissions from degrees of 1,300-1,400°C to 75°C in a tenth of a second.

Building these kinds of expensive systems into one of the Thai treatment centres would not be economical unless Thailand started importing PCBs to be destroyed (for a fee), something few countries are willing to do. [passage omitted]

Prime Minister Calls for Private Sector Environmental Role

BK2401015392 Bangkok BANGKOK POST in English 24 Jan 92 pp 17, 26

[Text] Prime Minister Anan Panyarachun yesterday called on the private sector to play a more aggressive environmental protection role.

He also said business leaders should work together with the Government "to overcome threats to the environment and to achieve sustained prosperity."

Business growth and environmental protection need not be mutually exclusive, he said. In fact, conservation could help create business opportunities.

Mr. Anan told the "Asia and the Pacific: Merging Business and the Environment" conference that many governments, including those of the United States and Japan, had offered developing countries a lot of money to increase their environmental protection.

He said this was because these countries would benefit from increased business later on as the developing countries needed to import conservation-related equipment.

"Cleaning up the environment is not just a price paid by doing business," he said.

"It can become a very definite way of taking a new competitive stand within the emerging international trade regime where environmental concerns play a large role in determining trade flow and ensuring long-term growth.

"With increasing economic regionalism, tariff barriers are gradually being withdrawn, while new nontariff barriers, particularly those related to the environment, are on the increase."

He said the business community needed to recognise this trend and companies should position themselves where they could protect their activities from adverse international conditions and be ready to seize the first opportunity for expansion when it became available.

Mr. Anan said the Government was planning the establishment of an environmental fund to help support businesses which amended their production methods to best serve the new environmental concerns.

The proposal calls for the extension of soft loans to businesses engaged in fighting pollution as damaging waste emissions were a type of social ill and society had to share the burden of finding a remedy.

Mr. Anan said his administration had introduced unleaded gasoline to help reduce air pollution in Bangkok, and had also initiated the installation of centralised treatment plants and hazardous waste treatment plants in industrial zones in Bangkok's surrounding areas to serve the needs of the expanding industrial sector.

"The waste water treatment system in Bangkok alone will cost about 30,000 million baht," he said.

Government efforts will generate a lot of business opportunities for companies here and abroad.

The installation of catalytic converters in vehicles to tackle excess emissions and the development of waste treatment facilities are examples of areas where opportunities now exist.

The Premier said the private sector was in a strong position to develop corporate social responsibility on a wide range of environmental and development issues.

Now businesses are faced with the challenge of avoiding conflicts with conservation groups and nongovernment organisations while carrying out their business operations.

The Government is working on policies covering environmental management and a draft National Environmental Act is now being considered by the National Legislative Assembly and should become law within the next two months.

The draft calls for the Prime Minister to chair a ministerial-level board government environmental management.

"Thus environmental management will have a united command and will have greater effectiveness."

He said the new law would also change the role of government from being primarily a regulator and controller of development activities to one of supporting and facilitating development.

He said the Government would like to participate in environmental protection at a global level, and had started by discouraging local companies from logging activities in neighbouring countries intended for export to third countries.

"In Thailand, we have taken the radical step of banning all logging to protect the remaining rain forest. We have also embarked on a massive reforestation programme."

Mr. Anan said cooperation had been sought from all countries in protecting the environment "because no one nation can tackle this issue successfully on its own. No single government can bring about efficient environmental management without the help and cooperation of the business community and the populace at large."

Yesterday's conference was organised by the Thailand Development Research Institute, International Herald Tribune, Thai Airways International and Mazda.

National Assembly Approves World Standard Wildlife Bill

BK2501032592 Bangkok *THE NATION* in English
25 Jan 92 pp B1, B8

[Text] New wildlife legislation bringing Thailand in compliance with the Convention on International Trade of Endangered Species (CITES) was approved by the National Assembly yesterday.

A committee on wildlife conservation and protection will be set up after His Majesty the King endorses the new law for enforcement, according to a source at the Agriculture Ministry, who noted that the agriculture minister will chair the panel.

The ministry will also issue regulations governing the production of protected species, zoos, wildlife import and export businesses and transshipment.

Under the new law, animal species are divided into two categories: protected species and endangered species. Previously, there were three categories. The source said the third was eliminated because the government does not want to promote hunting.

In addition, the new law expands the definition of wildlife to include fish. Directors-general of the Forestry and Fisheries Departments are empowered by the law to exercise authority in this regard.

The government will soon announce a list of species whose import and export as well as transshipment is to be controlled. The list will cover species mentioned in CITES. The source said those engaging in the trade of wildlife must have licences or certificates issued by the proper authorities.

Those who raise wildlife and zoo operators must apply for licences. Zoo licences are for recreational and educational purposes, reproduction of rare and endangered species, or research and development. Existing zoo operators must also meet the new regulations and apply for new licences within 30 days after the law is enforced.

Under the law, those who illegally possess wildlife or animal carcasses will be granted amnesty if they report to the authorities within 90 days. If the animals are endangered species, the government has the right to confiscate them.

Owners cannot resell endangered species, although inheritance is permitted. The same guidelines will apply if other endangered and protected species are involved.

REGIONAL AFFAIRS

Poland, Ukraine To Sign Environmental Agreement*LD2901200692 Warsaw PAP in English 1824 GMT
28 Jan 92*

[Text] Warsaw, Jan. 28—Successful talks between Polish Environment Minister Stefan Kozlowski and the Ukrainian Deputy Environment Minister, Vasily Kostitski, on developing cooperation in this field were held in Warsaw on Tuesday.

A Polish-Ukrainian agreement on environmental protection is to be signed in Kiev in a few weeks, according to Jerzy Straczuk from the Environment Ministry.

Kozlowski promised 100M Zlotys (around 90,000 dollars) to train Ukrainian specialists in Poland and for consultations with them.

The main body of the talks was concerned with cleaning up the lakes and rivers in the border regions and general environmental cooperation in those areas. Permanent monitoring and inspection were seen to be of especial importance. "The Ukrainian side is counting also on the exchange of experiences", said Straczuk.

CZECHOSLOVAKIA

Vavrousek Presents New Completion Proposal for Gabčíkovo Dam*AU2401110092 Prague CSTK in English 1301 GMT
22 Jan 92*

[Text] Prague, Jan 22 (CSTK)—Czechoslovak minister-chairman of the Federal Committee for the Environment, Josef Vavrousek, today informed reporters on a new plan to complete the controversial Czechoslovak-Hungarian dam project on the Danube.

Vavrousek said the new version retains the canals and other parts of the power station already built at Gabčíkovo, Western Slovakia. But it does not entail power generation at the Hungarian part of the project at Nagymaros, several dozen kilometres downstream.

A small dam would have to be built near Nagymaros in order to keep that part of the Danube permanently navigable, Vavrousek said.

Czechoslovakia and Hungary decided to build the twin-dam project in 1977. Hungary stopped work on both dams in 1989 for environmental reasons, while Czechoslovakia continued construction at Gabčíkovo.

Slovak Government Considers Nonnuclear Conception for Power Industry*LD0502121192 Prague CSTK in English 2120 GMT
4 Feb 92*

[Text] Bratislava Feb 4 (CSTK)—The Slovak Government today took note of Slovakia's power industry conception up to the year 2005, submitted by the Slovak economics ministry and envisaging a nonnuclear way of ensuring Slovakia's energy needs.

Slovak Economics Minister Jozef Belcak today told a news conference that a definitive orientation of Slovakia's power industry should be decided in 1995.

The ministry envisages the completion of the Mochovce [west Slovakia] nuclear power plant by 1996, completion of the controversial Gabčíkovo Hydroelectric project on the Danube, more effective use of water resources, and construction of three 200-MW gas-steam cycle units in east Slovakia.

The construction of the Mochovce nuclear power plant started in 1981.

Belcak said the non-nuclear variant would require about 60,000 million crowns [2,000 million USD] less than the nuclear one.

Czechoslovakia's first nuclear power plant was built at Jaslovské Bohunice, west Slovakia, and put into operation in 1972. Its Soviet A-1 type plant was closed in 1977 following an accident while its two newer plants of the Soviet V-1 type continue operation. Czechoslovakia plans to close the power plant, located only 55 kilometres from Austria's border, in 1995.

In 1986, nuclear power plants accounted for about 21 percent of Czechoslovakia's power production.

The Gabčíkovo power plant on the Danube is part of a Czechoslovak-Hungarian twin-dam project whose construction was decided in 1977. Hungary discontinued work on its part of the system at Nagymaros in 1989 for environmental reasons.

Czechoslovak Premier Marian Calfa and Chairman of the Federal Assembly [Parliament] Aleksandr Dubcek explained Czechoslovakia's stand on the Gabčíkovo project in letters addressed to their Hungarian counterparts and handed over to Palo Benya, counsellor of the Hungarian Embassy in Prague, today.

The letters contain the Czechoslovak Government's stand of December 12 which confirmed the decision to put the project into operation in order to prevent floods, improve navigability on the Danube, and make use of the river's power potential. The Czechoslovak side will strive to minimise environmental impacts.

POLAND

Authorities Close Chorzow Steelworks Cokery Two Years Early*LD2501203792 Warsaw PAP in English 1604 GMT
25 Jan 92*

[Text] Katowice, Jan 25—Liquidation of a cokery in the Chorzow-based "Kosciuszko" steelworks, which has so far been a major environmental hazard, was completed two years ahead of schedule on Saturday, "Kosciuszko" technical director Wladyslaw Parzoch disclosed. For the inhabitants of Chorzow this fact can be translated into reduction of fumes emission by at least 2,000 tons a year. Parzoch claims that within eighteen months the "Kosciuszko" will become a safe plant environmentally. Former coke-makers were employed in other departments of the steelworks, he said.

ARGENTINA

Foreign Minister on Benefits of Antarctic Treaty

PY3001161692 Buenos Aires NOTICIAS

ARGENTINAS in Spanish 1315 GMT 30 Jan 92

[Text] Buenos Aires, 30 Jan (NA)—Argentine Foreign Minister Guido Di Tella has ruled out the possibility that the Antarctic continent can be declared a world patrimony. He also stated that the Malaysian proposal in this regard "has no possibility to make progress."

In remarks made yesterday during his visit to the Comodoro Marambio Base that were published today by a Buenos Aires morning newspaper, Di Tella agreed on the need to continue discussing the Antarctic Treaty, which places under a protective "umbrella" the discussion on this region's sovereignty, which is demanded by the involved countries.

He said the Antarctic Treaty is the best way to defend Argentine rights in this southern region, and that the continuity of Argentine foreign policy toward the Antarctic has benefited the country's interests in that continent.

Di Tella also said that the suspension of mineral exploitation for 50 years, which was agreed upon in Madrid on 9 October 1991 by the 26 Antarctic Treaty signatory countries, "has benefited Argentina" because it will go through better economic conditions at the time the suspension expires.

He also stated that during the international environmental summit to be held in Rio de Janeiro, Argentina will propose the need to seek "similar mechanisms" to that of the Antarctic Treaty to face problems like the greenhouse effect and the hole in the ozone layer.

Di Tella also noted that the activities carried out by more than 100 Argentines in the seven permanent bases established in the region are designed to support "Argentine interests" and to strengthen international cooperation in the Antarctic continent.

During his first visit to Antarctica, Di Tella was accompanied by retired General Jorge Leal, Antarctic Affairs Department director; Jose Maria Otegui, Foreign Ministry Malvinas and Antarctica Affairs Department director; and Commodore Ruben Zinny.

BRAZIL

Sotero Vaz Comments on Rio-92 Conference, Defense of Amazon

92WP0136A Sao Paulo VEJA in Portuguese 22 Jan 92
pp 7-9

[Interview with Brigadier General Thaumaturgo Sotero Vaz, reserve, by Policarpo Junior, in Manaus on 15 January 1992: "Waiting for War"]

[Text] Upon entering the reserve, the general says that the Amazon is in danger of being invaded by foreigners and that Brazil needs the atomic bomb.

Since the end of the military regime, Brazil has lost the habit of listening to the dissertations of hard-line military men, but the latter have not disappeared. Last week a typical example of that family—Brigadier General Thaumaturgo Sotero Vaz, 59—entered the reserve with some tough talk. Thaumaturgo made a name for himself last year by starting a quarrel with the national secretary for the environment, Jose Lutzenberger, in which the two called each other idiots for defending opposing views on the devastation of the Amazon. But Thaumaturgo has always been known among his uniformed colleagues for his radicalism. When he left the CIE (Army Intelligence Center) in 1982, the then (and current) governor of Amazonas, Gilberto Mestrinho, offered to "parachute" him into the position of mayor of Manaus, but the appointment was vetoed by the SNI [National Intelligence Service]. The intelligence community considered him too radical at the time—his appointment would have been a danger to the process of political relaxation.

On Monday of last week, at a ceremony held in Manaus in the presence of Minister of Army Carlos Tinoco, Police Chief Romeu Tuma, and Mestrinho, Thaumaturgo surrendered his position as chief of staff of the Amazon Military Command—the second-highest post in the region's hierarchy—to General Ariel Pereira da Fonseca, who has a more moderate image. That reduced Thaumaturgo's troops to a total of 37: his wife, seven children, 16 dogs, and 13 birds.

But "anyone who thinks he has gotten rid of me is very mistaken," warns the general, a pugnacious man measuring 1.65 meters in height. "Now I have more freedom to defend my ideas." On Wednesday, when he had been in the reserve for only two days, Thaumaturgo welcomed VEJA into his small but comfortable home in Manaus for a long interview during which we delved into the mind of a typical hard-liner who is far from being an exception and who is courageous enough to say whatever he thinks.

[Junior] The national secretary for the environment, Jose Lutzenberger, recently called you an idiot during a controversy that became famous. Were you offended?

[Sotero Vaz] Society today has changed so much that any man who upholds traditional values ends up being called an idiot. So I am one of them. My military career has been ruled by discipline. My greatest virtue is loyalty to my principles and my superiors. In the name of that loyalty, I have already swallowed a few insults here in the Amazon. The government decided to demarcate the Ianomani lands and blow up the landing strips where airplanes belonging to gold prospectors land, for example. Although I did not agree, I bit my tongue and the Army cooperated in those operations.

[Junior] What is your opinion of Lutzenberger?

[Sotero Vaz] He defended something that was unacceptable. He suggested that all decisions affecting the environment should satisfy the desires of foreign countries or be screened by them. That constitutes interference in our internal affairs, and I cannot accept that. Lutzenberger is the representative in Brazil of the Gaia Foundation, which is a kind of Anglo-American ecological oligarchy. That

organization supports a new international ecological order. But its leaders are people totally involved in the destruction of the environment. One of them, for example, is Sir John Harvey-Jones, former president of a British chemical firm called ICI, which is one of those chiefly responsible for the hole in the ozone layer. The group's leadership also includes people who advocate restricted sovereignty for countries with regions of ecological value. Moreover, the Gaia Foundation is active in the United States in cooperation with a group called the Lucis Trust, which has ties with the United Nations. And that is the reason for our concern.

[Junior] And what has the United Nations got to do with it?

[Sotero Vaz] The Americans invaded Grenada, moved into Panama to seize a president, and united half the world against Saddam Husayn. All in the name of a supposed justice and world order. From the United Nations the United States received support for all those war operations. Imagine what would happen if tomorrow they started saying up there that the Brazilians were massacring the Ianomani people. Who can guarantee that in the name of human rights, foreign troops will not occupy the Amazon and declare the independence of the Ianomani state? Brazil would be stripped of a territory larger than Portugal. And the whole thing would certainly happen with UN support.

[Junior] Isn't that an exaggerated fear?

[Sotero Vaz] No, quite the contrary. Perhaps the answer can come from Nicaragua. A short while ago, military authorities talked with Commander Daniel Ortega, who was surprised by the Brazilian situation. He said that Nicaragua had faced the same problem when it created an Indian reservation on the country's border with Honduras. From that point on, the United Nations began backing the territory's independence with the support of dozens of ecological groups throughout the world. The only thing is that if that is the plan, their mentors would do well to cut the bull.

[Junior] Why?

[Sotero Vaz] If necessary, I and certainly a very large group of patriots will take up arms to defend our territory. In a possible war, the training of the Brazilian military and our knowledge of the jungle will give us superiority. Warfare in the jungle is a matter of hand-to-hand combat, and technology is no help.

[Junior] Do you consider war in the Amazon to be a real possibility?

[Sotero Vaz] Nothing is improbable since the fall of the Berlin Wall. Who can guarantee that some crackpot will not turn up tomorrow saying that the Amazon belongs to the world? And there are several ways to take over the Amazon. The gentlest way is through international pressure by fake ecologists, and that is something we are witnessing now. There are those who are thinking of trying to occupy it on the grounds that it is an important drug route, as happened in Bolivia. The most radical option

would be a military invasion: a war. We cannot rule out that possibility just because we prefer peace.

[Junior] Do you see Rio 92 as a weapon in that creative plan for occupying the Amazon?

[Sotero Vaz] In the first place, the world environmental conference will deal chiefly with the Amazon, and it is therefore scheduled to take place in the wrong city. It will serve only to promote Rio de Janeiro and lend prestige to Governor Leonel Brizola. We know that an attempt will be made to condemn Brazil for the way in which it administers its forest. And what is worse, so far we have had no news of anyone from this region being invited to participate in that event. That explains our fear—our concern. We are relying only on the good sense of President Collor and his advisers, and we hope that they will please defend us.

[Junior] Has it never entered your mind that the developed countries might be really interested in preserving the Amazon and not in occupying it militarily?

[Sotero Vaz] That is naive. This business of the destruction of the forest does not exist. It is a false rumor. It may indeed be the case that in the midst of the debate, there are people truly interested in preserving the forest. But the rich countries are using that argument to further their economic interests. Anyone not familiar with the Amazon has no notion of the region's economic potential. There is a strong interplay of interests behind a number of pseudo-ecologists. Most of the Ianomani Indian villages are sitting on huge mineral deposits: minerals that are important to the world, examples being cassiterite, gold, diamonds, niobium, molybdenum, and uranium. The rich countries want to keep some areas unexplored so that they can use them later when their own mineral reserves are exhausted. That is why the idea of limited sovereignty has its defenders. The German chancellor himself, Helmut Kohl, has said that the countries constituting the so-called Group of Seven need to reach an agreement with the Brazilian Government so that rules for the administration of the Amazon can be established.

[Junior] Considering that Collor ordered the demarcation of the Ianomani Reservation, is he also part of that international machination?

[Sotero Vaz] The area has not yet been demarcated.

[Junior] Does this mean that the process may still be reversed?

[Sotero Vaz] The president made the decision which, at the moment, seems most appropriate in view of Rio 92.

[Junior] Are you saying that the decree signed by President Collor may be amended as soon as Rio 92 is over?

[Sotero Vaz] Knowing the president's spirit of Brazilianism, I believe it will be.

[Junior] Don't you feel that the Indians deserve a reservation?

[Sotero Vaz] It is obvious that we must protect the Indians. What is wrong is the way in which armchair anthropologists want to do it. In the case of the Ianomani, there are studies by serious anthropologists which question the fact that they are really nomads. If that is true, why do they need an area of 9.4 million hectares and, moreover, one bordering on Venezuela? The issue has not yet been thoroughly debated.

[Junior] Is the fact that the region is the center of world attention upsetting its development?

[Sotero Vaz] Unquestionably. All one need do is consider the matter of Highway BR-364. President George Bush, under the aegis of environmentalism, prevented Japan from granting the financing for construction of the road linking Acre and Peru. He claimed that the road would cause irreparable damage to the Amazon forest. Actually, Bush was simply defending his own commercial interests. If that road were completed, surplus Brazilian production would reach Asia at prices far below those of U.S. products. The Americans would lose that market. They are using preservationism to protect their profits. That uncontrolled capitalism is the planet's real problem.

[Junior] What solution do you advocate for the Amazon?

[Sotero Vaz] I advocate self-sustained development. A rigid system of supervision can be set up to allow the exploitation of lumber, minerals, fishing, and hunting in a way that is not predatory.

[Junior] Do you believe that the security of the Amazon is Brazil's biggest problem?

[Sotero Vaz] Corruption is our biggest problem. We see corruption all the time. It seems to be a cancer—a wound. Corruption today is reaching such a point that it can be compared to betrayal. Betrayal of the Brazilian people who pay taxes and who suffer in line at the bank to collect their paltry pensions. We must adopt legal and police measures to try to stop it. President Collor responds to all complaints and orders investigations, but no one sees the corrupt going to jail. I am not foolish enough to deny that there was corruption in the military governments. But what we are seeing today makes us very indignant.

[Junior] Aren't you also indignant over the Army's attempt to buy overpriced uniforms?

[Sotero Vaz] No crime was involved in accepting those prices. It may be that there is corruption in the Army, but there was nothing irregular about the case you mention. Anyone who deals with purchasing knows that. The firms submitted their bids without knowing how much they would receive for the service, so they built in an allowance for inflation. I feel that the complaint was an attempt to harm the Army, and I don't understand the motive. Especially considering the source of the complaint.

[Junior] Are you referring to the newspaper O GLOBO?

[Sotero Vaz] The newspaper's insistence on proving that there were irregularities forcefully attracted my attention. Roberto Marinho (owner of the GLOBO organizations) was always very friendly toward the armed forces, mainly

when he started building his empire. I consider it amusing that he and his newspaper are trying to pose as moralists when we know that the establishment of the Globo Network in partnership with the Time-Life system always followed strange paths and involved much influence peddling within the military governments.

[Junior] Are you a hard-liner—a diehard?

[Sotero Vaz] I am a liberal democrat.

[Junior] Is it true that you admire General Pinochet?

[Sotero Vaz] Everyone says that Pinochet is a dictator—and only that. They forget that he put Chile in an enviable position in economic terms. He eliminated inflation. I admire him as a military leader. This does not mean that Brazil needs a Pinochet. If former President Castello Branco's plan had been carried out, power would have been returned to civilians long ago and Brazil might be better today. The military should not have remained in power. Even so, I greatly admire Generals Medici and Figueiredo. Costa e Silva was the one who promoted corruption in the military governments, but I prefer not to go into details concerning the image of someone who is dead. As for Geisel, I have personal reasons for not admiring him. I can only say that I greatly admired General Sylvio Frota and that he was treated unjustly.

[Junior] Isn't it strange for a liberal democrat to admire Gen. Medici, the head of a government that backed torture?

[Sotero Vaz] Gen. Medici governed in a very difficult period. He had to combat subversion and terrorism. I myself was threatened with death several times, and my children had to be escorted by guards. It was a war.

[Junior] But it is a crime to torture prisoners even in wartime.

[Sotero Vaz] Maybe that was the only means of getting information quickly. Nowadays everybody goes to church and prays, but they forget the Inquisition that occurred during the Middle Ages. We know that that, too, was a phase of the church, and we don't decide to condemn it for eternity. It needs to be realized that it was a moment in time. We were in a period when we were striking back at a plot aimed at creating a syndical republic. Brazil has now attained a level of politicization that prevents events like those in 1964. The armed forces think differently now. There is no room for conspiracy or military mutinies. The country's future lies in the ballot box.

[Junior] Isn't it possible that the economic crisis might change the way the armed forces think?

[Sotero Vaz] I support the Collor administration, and I feel that it is doing what is best for Brazil. I would have only one observation to make. We cannot accept anti-inflationary formulas which place us in a subservient position. And I have noticed clear signs that we are accepting formulas imposed by this or that organization, such as the IMF—formulas that run counter to the will of the people. It does no good to contain inflation at the cost

of hunger and unemployment, because at some point, somebody is going to throw the first rock, and then it will be too late.

[Junior] Too late for what?

[Sotero Vaz] The administration's economic policy is causing inflation to fall, but at the same time, it is causing tough times and unemployment. We are close to the limit, and it is very probable that we will reach a situation of rebellion. We may be heading toward the occurrence of disturbances. In Manaus, for example, there are already instances of supermarkets being looted.

[Junior] If mentalities have changed, isn't it time to rethink the role of the armed forces?

[Sotero Vaz] I find that funny. First of all, the armed forces receive an insignificant share of the General Budget of the Union. Second, it must not be forgotten that a sovereign country cannot exist without an Army. An episode like the one that occurred on the banks of the Traira River is instructive. Armed Venezuelan prospectors were invading our territory, and they even killed Brazilian soldiers. Who could we have turned to in that situation except the military? We went there and taught those prospectors a lesson, and they have not dared enter Brazilian territory since. Besides its Army, Brazil should also have its atomic bomb.

CHILE

Ozone Layer Project Awaiting World Bank Loan Approval

PY0702195492 Santiago *EL MERCURIO* in Spanish
31 Jan 92 p C7

[By Patricio Gomez Couchot]

[Excerpt] Concepcion—Acting National Resources Minister Pia Figueroa has said that Chile is waiting for the approval this year of a loan of nearly \$5 million from the World Bank. She said the loan will be used to finance a technological reconversion project aimed at eliminating all substances that harm the ozone layer. The implementation of this project would take four to five years.

She explained that Chile does not produce any substance that harms the ozone layer, although it imports them from other countries. She added that Chilean consumption of these substances is 0.09 percent of total international consumption.

Figueroa said the National Resources Ministry studied with the private sector a way of replacing these substances with harmless gases. This project to preserve the ozone layer will cost a minimum of \$3.4 million and a maximum of \$5.2 million. [passage omitted]

'El Nino Phenomenon' Research Results Reported

PY0702144692 Santiago *Radio Chilena Network*
in Spanish 1000 GMT 7 Feb 92

[Text] A special cruise to study the phenomenon known as "El Nino" has ended in Antofagasta. The cruise, called

(Erpem Eight), involved the research ships "Abate Molina" and "Carlos Porter" of the Fishing Promotion Institute and lasted 20 days.

Doctor Patricio Bernal Ponce, executive director of the Fishing Promotion Institute, said that he is very pleased with the results.

[Begin recording] [Bernal] On 28 January, the oceanographic factors of the phenomenon known as El Nino were not fully developed. These factors might affect fishing resources in northern Chilean waters. We have found an abnormal 2-degree difference in the temperature of the water, but this seemed to be linked to specific factors and not to a wave originated at the equator, as would have been the case of El Nino.

[Reporter] Can we relax, for the moment?

[Bernal] I believe so, because the effects of the phenomenon have no direct impact on the people, although they can cause fish to move to regions where we do not normally fish, or to make some fish disappear temporarily from the region. [end recording]

Chile has contributed the data obtained by the coast stations and the cruise under way. [sentence as heard]

The data obtained so far indicates certain abnormal conditions which point towards the beginning of a new El Nino phenomenon in the South Pacific.

How long and how intense the phenomenon will be is hard to guess, but the effects are expected to be from moderate to severe. It has not strongly affected the region's climate or fishing activities yet.

COLOMBIA

Government Approves Herbicide Against Poppy Fields

PA0202132192 Santa Fe de Bogota *Inravisión*
Television Cadena 1 in Spanish 0000 GMT 1 Feb 92

[Text] The national government settled the argument between those who protest the use of glyphosate and the need to destroy the poppy plantations. The National Narcotics Council today decided that the chemical could be used, but with severe restrictions to protect the population, land being cultivated, domestic animals, and cattle.

This decision was made during a five-hour meeting of the National Narcotics Council. The use of this herbicide was authorized in areas to be established by the Colombian Agricultural-Livestock Institute and the Institute of Development of Renewable National Resources. These areas must be large and only planted with poppy. The approval of aerial spraying represents a victory for the authorities. Nevertheless, those who oppose this method, led by the health minister, made an exception to the decision adopted by the National Narcotics Council. They argue that there is evidence of health risks, damage to the ecosystem in other countries, and that there is no guarantee to the efficiency of glyphosate. We have statements by Health Minister Camilo Gonzalez Posso.

[Begin Gonzalez recording] There are no documents to confirm the effects of glyphosate on the poppy plantations. The producers have steered this product to other uses such as a herbicide or to ripen crops. [end recording]

The health minister insisted on the mechanical method to eliminate the evil flower under the present conditions. He claims this method will generate 700 jobs by using the communities to eliminate these plantations. This plan would cost 8 billion pesos, however, according to the minister, it would guarantee the destruction of the poppy plant. Nevertheless, the only thing the minister was able to obtain at the meeting was that a commission will evaluate the consequences of the spraying on the ecosystem.

MEXICO

Government To File Protest on U.S. Tuna Embargo

PA2901205292 Mexico City Radio ACIR Network
in Spanish 0030 GMT 29 Jan 92

[Text] Addressing the Chamber of Deputies' Foreign Relations Commission, Assistant Foreign Secretary Andres Rosenthal said Mexico does not want to be a member of any bloc or group of countries whose very presence inhibits relations with other regions or nations. This is why Mexico accepts and encourages the economic opening of the world, and rejects creating protectionist fortresses. He said Mexico has participated in worldwide changes as an actor and not as a mere spectator.

Rosenthal said in the past year Mexico has reaffirmed its foreign policy, which is based on the defense of its sovereignty—not as a stubborn anachronism, he explained, but because Mexico has a new image in the world, and a new and firmer presence. He also told the legislators that at the GATT meeting in April, Mexico will file a strong protest over the tuna embargo to which it has been subjected by the United States and will request the support of the GATT countries.

Rosenthal added that measures have been adopted to include on the worldwide agenda such topics as environmental protection, drug control, and human rights protection, which are important elements for improving relations among countries.

[Begin Rosenthal recording] Firmly rooted in traditional principles, Mexico's foreign policy contributes to the consolidation of regional and international order based on law. Dialogue, negotiation, and the peaceful solution of controversies aimed at channeling the efforts of countries toward peace and development, are not abstract hopes for Mexico, but a deep-seated form of behavior. [end recording]

Rosenthal said in conclusion that Mexico is promoting its interests throughout the world, in keeping with the current new reality. There are new mechanisms, he said, for dialogue and agreement, but there are also new challenges that require imagination and intelligence if they are to be confronted and overcome.

NICARAGUA

Environmental Movement Issues Proposals for New Legislation

Results of National Seminar

92WN0259A Managua OIKOS in Spanish 12 Dec 91
p 6

[Text] On 14 and 15 November, the Nicaraguan Environmental Movement held a national seminar billed as "New Environmental Legislation in Nicaragua," at the conclusion of which a document was adopted titled: "Declaration of November 91." The document sets forth a number of important proposals in regard to legislation designed to protect and preserve the environment.

Believing them to be of interest to our readers, we publish below the salient opinions and conclusions reached by this seminar.

Having scrupulously examined the dramatic deterioration of the environment, and with a view to influencing the drawing up of economic, legal, and administrative policies designed to curb the ongoing destruction of the environment and our natural resources, we submit the following proposals for consideration by our governmental authorities and citizens:

It is of the essence to opt for a sustainable comprehensive program of growth keyed to the preservation, conservation, and rescue of the environment and of our natural resources.

The new environmental legislation must be part of a sustainable growth strategy that provides the legal framework for its implementation. We therefore call upon the governmental authorities concerned to integrate the environmental dimension into the state's legislative and administrative policies, and urge that these be implemented forthwith, in a coherent and integral manner, taking into account regional differences and specificities, and autonomous rights in general.

The Authorities

We call upon the Irena [Institute of Natural Resources] and other agencies involved in the oversight and exploitation of our natural resources to issue, without delay, as an emergency measure, and in accordance with their vested administrative powers, the regulations and decisions capable of having an immediate impact on the critical aspects of the environment. (These aspects include deforestation, inappropriate use of land and water, lack of environmental education, etc.)

It is essential that all international agreements considered advantageous to Nicaragua, for their contribution to regulating the use of our national resources and to the protection of our environment, be ratified or enacted as the case may be.

Also essential is the need to enact the pertinent regulations and begin requiring forthwith the submittal of an environmental impact statement, for study and recommendations

by a competent technical agency, and as a prerequisite with respect to any proposed investment plans or new economic activities in connection with which such statement would be appropriate. The proceedings involved in the processing of this statement must necessarily include provision for full participation in those proceedings by the community or social sectors within which the new activity is to take place.

Environmental education must be fostered on a generalized scale; In the universities, and particularly in the law schools, as well as throughout the educational system.

An ad hoc committee must be appointed to assume as its function the systematic drawing up of the new legislation. The make-up of this committee must be interdisciplinary, and must include representation of state and social agencies. This committee should be required to submit, within a period of not more than six months, for subsequent public debate, a draft environmental bill.

The Platform

We also propose that this draft environmental bill contain provisions for:

- Educational, promotional, and preventive components, as well as the definition, characterization and classification of environmental offenses.
- Expeditious proceedings and decentralized structures at the municipal and regional levels with the human resources and equipment needed to implement them.
- Off-the-record and indispensable popular action in the reporting of environmental offenses. Nicaragua must strive in world forums for the adoption of these criteria and the internationalization of environmental offenses.

We propose enactment of the following aspects among others:

- An institutional body to coordinate the national efforts and plan environmental growth.
- The forming of a National Interdisciplinary Committee to support the government's capabilities in negotiations on the subject of biodiversity and other related subjects in the international bodies.
- Creation of a human rights attorneyship designed to enhance as one of these the right to a healthful environment.
- Regulations governing land-use planning and the use of resources, defining policy guidelines on the replenishment and restoration of these and the environment, including comprehensive protection of the soil, atmosphere, and catchment basins.
- Cross-border conservation and regulation of resources shared with other countries, seeking legislation at a pan-Central American level.
- Creation of forested zones, an augmentation of national parks and preserves, with a view to improving their regulation, nevertheless taking into account the social component.

—A reporting of our national wealth and on its management, our animal and vegetal biodiversity, and the protection of our plant-breeding resources.

—Revision and reform of laws that define closed hunting and fishing seasons and the protection of species in danger of extinction.

—Creation of a Scientific and Technological Research Committee, fostering its growth at the national and regional levels.

—Determination of the dangers inherent in the use of high technologies.

We endorse the proposals on policies, plans and programs contained in the document submitted by the seminar's committees. These must be the task of everyone, without political, social, or cultural distinctions....

Environmental Legislation...Let's go!

Stronger Laws Needed

92WN0259B Managua LA PRENSA in Spanish
4 Jan 92 p 4

[Commentary by Silvio Echaverry]

[Text] The National Reforestation Drive being promoted by the Irena [Institute of National Resources] has as one of its major objectives the planting of 125 million trees, over a period of five years, throughout the national territory, and deserves the support of all Nicaraguans conscious of the serious damage being done to the country's socioeconomic development by the unmerciful deforestation of our woodlands. The skill, professionalism, and efforts of Irena's leadership demand of all honest citizens who are truly concerned for the survival of the present and future generations of Nicaraguans all the support and pooling of resources needed to bring this great, patriotic, and urgent reforestation project to a happy end.

Unfortunately, the other side of the coin presents a different image. The forests that we still have continue dying under the impact of deforestation at an inclement pace and out of necessity, as a means of subsistence, by farmers and other people, impelled for their part by a precarious economy, and generally unaware of the consequences of their practices and actions against our ecological balance and sustained growth. We can accept economic pressures and ignorance as reasons justifying those acts and those persons. But there are individuals and unscrupulous firms that, though knowing the damage and injuries they inflict on the country, think only in terms of enriching themselves quickly at the expense of our natural resources, regardless of the magnitude and consequences of their acts. For the latter, there is no justification whatever, and such individuals and firms merit the full force of the law, which though weak and deficient, does set penalties for such acts.

I have talked with several Irena officials and other persons concerned over the country's environmental problems. In the opinion expressed by many of them, the levying of stiff penalties by way of enforcement of existing laws is not the

most appropriate mechanism for curbing the abuses perpetrated by those who inflict damage on our forests and other natural resources. Primacy, in their view, is to be accorded to environmental education as the most suitable method for raising the citizenry's level of consciousness as to the need to exploit our natural resources in a regulated manner and as part of a sustainable development strategy. In part, I share that opinion, especially when necessity and ignorance are the factors that impel certain citizens to commit these acts. In such cases, education as the means of indoctrination is the most suitable approach for demonstrating the benefits of sustained exploitation of ecosystems. But for those who, knowing the damage they are inflicting on the environment and hence on the country, raze our forests and despoil our natural resources, with profit as their sole object, and in violation of existing laws, the approach is not education, but rather enforcement of the law.

The consequences of uncontrolled razing of our forests are many and overly known by a sizable sector of the citizenry. Nevertheless, by way of illustration, I shall cite some of the most serious:

- Loss of fertility of our soils as a result of erosion by water and wind, the magnitude of which increases as the volume and intensity of agricultural run-off and wind velocities increase, leaving soils less and less protected against the erosive action of these elements.
- Loss of volume and capacity of water sources, both surface and underground, in many cases to the point of total depletion, as has already occurred in many parts of the country, exacerbating the problems of supplying that precious liquid for various purposes.
- Contamination of water sources is becoming worse, owing to the inflow of agricultural chemicals, industrial wastes, garbage, and other pollutants, thus endangering the life and health of Nicaraguans.
- Electrical power outages as well as radical climatic changes are being attributed in large part to problems stemming from deforestation.
- Environmental quality is affected, increasingly limiting our ecotourism potentialities.

We must face the fact that Nicaragua cannot circumvent the phenomenon of populational increase, and as long as that prevails, deforestation and the unregulated exploitation of our resources disrupts the natural balance, limiting the potential of present and future generations, and putting human survival itself at risk.

It is stimulating to note recently the marked interest on the part of a sizable number of citizens concerned over the country's environmental problem area, one of the most notorious aspects of which is deforestation. This concern is reflected in the number of complaints and accusations continually being read and heard in the different media. By way of example, permit me to cite the headlines of some cases, published in the weekly LA PRENSA:

- 1 July 1991 (Rivas) Mayor Indicates Felling of Trees Increased in Zone Last Summer
- 2 July 1991 (Rio San Juan) Minister Incer Charges Illegal Felling in Rio San Juan, Saying Peace Was Achieved, But What We Now Have Is War Against Forests
- 3 July, 1991 (Jinotega) Prosecutor Warns Against Destruction of Forests
- 9 July 1991 (San Carlos) San Carlos, Another Victim of Contraband and Felling
- 26 July 1991 (El Rama) El Rama 80 Percent Deforested, Felling Facilitates Flooding; Engineer Patricio Jerez, Irena Deputy Director, Asserts Lumber Merchants Cut Down Around 200,000 Hectares of Timber Yearly
- 26 August 1991 (Esteli) Police Protect Forest Fellers
- 26 August 1991 (Condega) Exploitation of Forest Charged
- 27 August 1991 (Matiguas) Mayor Protests Against Felling of Trees Along Banks of Bulbul, Quirragua, El Sahino, and La Pavona Rivers
- 29 August 1991 (Granada) Government Official Orders Felling of Trees
- 5 October 1991 (Managua) Felling in Cuenca Sur
- 8 October 1991 (Musun) Proclaiming St. Francis of Assisi Patron Saint of Environmentalism, Reverend Antonio Vaccaro, OFM, Charges Deforestation in Extensive Zone of Musun
- 15 October 1991 (Somoto) Cooperatives Destroy Forest Preserve
- 25 November, 1991 (Ocotal) Irena Backs "Management Plan" Aimed At Recovery of Our Forestry Riches; This Plan Has Not Had Cooperation of Military Authorities
- 1 December 1991 (Chontales) Environmental Damage to Seized Ranch Charged

I could go on citing an endless list of complaints and charges with respect to the destruction of our forest resources, emanating from all four corners of the Nicaraguan geography. One has the impression that in our declared "country in which the rule of law prevails," the very concept of right and respect of private property has been lost in the mire of a populist demagoguery, in which not even the owners of property they have acquired lawfully or inherited from their ancestors—who hewed that property on the basis of self-denial, sweat, and honest work—escape the hoards of forestry pirates, for whom neither law nor country exist.

We stress the need to provide the Nicaraguan state with environmental legislation that will enable a more efficient use and protection of our natural resources. Of this need there cannot be the slightest doubt, and it must be provided at the very earliest possible, to support the statement issued by the Directorate of Disclosures and Press Relations of the Republic on 23 November, asserting the

government's commitment to become part of the worldwide environmental protection strategy, as a fundamental step toward achieving a balanced and self-sustaining growth. The statement further stipulates the technical and specialized role of the Irena, and the participative role of the Ministry of Economy and Growth, as the institutions responsible for ensuring the implementation of the Policy of Planned Exploitation of Natural Resources.

The fact calls for attention, however, that at this point in time there is a lack of means, resolve, and appropriate mechanisms for enforcing the current legislation. The tentacles of the symptomatic anarchy that is suffocating other sectors of our society are apparently reaching out to the institutions responsible for ensuring the conservation of our Ecological Endowment, hindering or preventing the right of these institutions to fulfill their responsibilities. Many of the complaints against the fellers of trees, and against the lumber merchants, point to negligence and a lack of support on the part of "certain authorities" for the institutions responsible for ensuring compliance with the laws relating to the use and management of our natural resources. Cases are even mentioned in which the deforesters actually rely on the support and protection afforded them by those "authorities," who undoubtedly obey more powerful interests.

Given the situation that currently besets the country, and at the threshold of the overarching and necessary reforestation project being fostered by Irena, several questions arise:

- What other mechanisms or strategies will the government implement to ensure that the reforestation project is carried out in accordance with the plans that have been formulated, and that the institutions responsible for ensuring compliance with the environmental legislation receive the full support of the executive branch through its appropriate agencies, which is apparently not occurring at present?
- What can we expect when the Irena's departmental and municipal delegates lack the vehicles they need in order to perform their functions, with their very limited wages and economic resources, as is also the case with the well-meaning and self-sacrificing members of the College of Biologists and Ecologists of Nicaragua [COBEN], who lack the support necessary to realize their environmental educational work, and to set up tree nursery gardens in intensively deforested zones, while the lumber merchants are equipped with the most sophisticated means of razing our forests to the ground, including chain saws, trucks, and even helicopters?

If our environmental legislation is not revised and strengthened and supported by mechanisms suited to its enforcement, along with an intensive environmental education drive duly supported in all its facets, while at the same time developing alternative energy sources so as to reduce the pressure on our forests, our country's future prospects are not all that bright.

If things continue as at present, I can only say—emulating Don Fabio Gadea Mantilla, whom I do not know but

respect for his patriotism and honesty, when, in his "Love Letters to Nicaragua", he refers to those things he considers injurious to the nation's interests, whatever their source—DIRE NIGHTS AND DARK DAYS AWAIT YOU, NICARAGUA!

VENEZUELA

Government Seeks Changes in Environmental Crimes Law

92WN0260A Caracas *EL DIARIO DE CARACAS* in Spanish 8 Jan 92 p 9

[Article by Marcos Tulio Socorro M.]

[Text] A government commission will study the text of the Environmental Crimes Law in order to draft a proposal containing the changes the executive branch wants introduced in this controversial legal text.

Ministers Enrique Colmenares Finol (Environment and Renewable Natural Resources) and Jesus Ramon Carmona (Congressional Relations) explained at a press conference yesterday that the government wants to use the "time window," that is to say the period of three months between the approval of the law and its effective date, to "perfect" some of its provisions.

The commission, which is being coordinated by the head of the MARNR [Ministry of Environment and Renewable Natural Resources], also includes representatives of the Ministry of Energy and Mines and the Ministry of Agriculture and Livestock, and the minister of state and president of the Commission for Presidential-Congressional Relations.

Colmenares Finol gave assurance that this commission will have completed its work within a month, at the end of which the government proposal may be included on the agenda for the next period of national congressional sessions.

Initially, this announcement received a cool reception from environmental reporters, because it was interpreted as meaning yet another delay for the final implementation of the Environmental Crimes Law, which has been awaited for 10 years. However, the minister said that the law will go into effect within three months regardless of the discussions being generated at the present.

Minister Carmona said that "the government has only had about 10 days in which to analyze the law, because it was approved at the end of the last 1991 congressional period. The desire of the executive branch is to reconcile environmental concerns with the economic activity of the country."

In response to reporters' questions, Carmona explained that the government is especially concerned about the provisions in the Environmental Crimes Law for arresting violators. "The executive branch hopes that the law will allow those charged to be provisionally released until their responsibility is proven...so that the livestock breeder or crop raiser can continue his activities until the court makes a determination."

The Environmental Crimes Law provides for sentences of up to 10 years in prison for those who do ecological damage.

The other point which concerns the government is that pertaining to the period of time allowed enterprises for the adoption of the technical provisions called for by the new law. "It would seem advisable for the Environmental Crimes Law to provide a more precise definition of the periods within which the polluting industries, the oil industry included, must make the required investments in cleaning up the environment," Carmona said. "It is frustrating that the intention of the government is to reconcile environmental concerns with economic activity, while the aspirations of the nation and the world are the opposite—to reconcile economic activity with environmental concerns. Why, when in other laws, the principle is 'let the chips fall where they may,' isn't that the case here?"

Minister Carmona explained that he was not assigning the economy and the environment any hierarchic order. "No law can fail to take the economy into account, and all economic activities, beginning with the oil industry, which is the foundation of our economy, have an impact on the environment. It is not a question, then, of halting all

activities, because this is not possible...but rather that with this new law, those who do damage here should pay for it."

Colmenares Finol interrupted with an example designed to clarify the picture of the government's concerns. "If a peasant has been planting crops on a slope and causing erosion for 50 years, it is unjust to put him in prison overnight because all of a sudden, there is a law which authorizes such an action. This is the reason for the importance of providing for the provisional release of those charged and establishing a precise definition of the period allowed for producers to meet the technical requirements set forth in the law."

Even if the Congress fails to approve the government's suggestions, these two ministers reiterated, the Environmental Crimes Law will go into effect within three months.

Minister Colmenares Finol took the opportunity to express his optimism and to praise the "high level of environmental awareness" gained by Venezuelan society in recent years. He also expressed his conviction that the Environmental Crimes Law will serve as a deterrent tool which will truly prevent many clashes in the near future.

BANGLADESH

Earth Summit Usefulness for Developing Countries Viewed

92WN0251A Dhaka THE BANGLADESH OBSERVER in English 27 Nov 91 p 5

[Editorial: "The Earth Summit"]

[Text] The United Nations has invited heads of government throughout the world to attend an Earth Summit to be held at Rio de Janeiro, in Brazil, in the first weeks of June next year. The objective of this summit will be to devise ways and means for sustainable economic development which will not deplete natural resources such as air, water and land, the three things upon which we are most dependent for human survival.

The main focus will be how to make technology which is environmentally friendly or, at least, kinder to the environment, available to developing countries at a price they can afford so that development and industrialisation is not hampered. Although admittedly industrialised nations are mainly responsible for the present situation which has caused the degradation, it is also generally understood to continue along this path is to invite the destruction of our planet. Developing nations, therefore, are constrained to take the action which will help to prevent further destruction. If, however, these developing countries at this point are to continue to have an acceptable rate of economic growth they must be provided with that little extra which will help them complete their task of protecting the environment from further damage.

Every existing technological process is responsible for the production of waste for complete and total recycling is just not possible. New technologies have, however, reduced the bad effect of waste disposal to some degree giving us hope for the future. By adopting low and nonwaste technologies it may be possible to reduce environmental damage to within sustainable limits.

In order for this to be successful each country must be given equal access to environmentally sound technology thereby placing effective transfer of technology high on the agenda of developing agencies. The worst thing about new technologies is that they are generally expensive which may make it difficult for poor nations to incorporate them in new ventures.

The idea being mooted so long that, in order to help developing countries from making the same environmental mistakes the advanced nations made, there is a need for some kind of funding. The Montreal Protocol (on Substances which Deplete the Ozone Layer) to the 1985 Vienna Convention for the Protection of the ozone layer which was signed in June 1990 recognised this as an important follow up to the 1985 Convention during which all signatories to the Convention agreed to help other countries to acquire alternative technologies. They also agreed to provide information, special manuals and training guides where needed. Unfortunately, as so often happens, in practice, such exchange of technology is rare.

Third World countries have already been put on the defensive when speaking of environmental concerns; yet it is well known they are not usually responsible for the widespread degradation to be found today. In many developing countries much of the damage has been due to the direct cause of the export of resources and commodities demanded by advanced states. Third World countries are in danger of becoming scapegoats for the present rate of environmental damage and will find themselves constantly under pressure to restore some of the former balance by cutting back on their plans for industrial advancement, at least to the extent they will have to adopt the use of energy saving and nonpolluting technologies.

The reaction of poor nations to this kind of pressure will become clear at the ensuing Earth Summit for most of the people who make up these countries populations are very dependent on the environment for their livelihood. These people are casualties of the social and economic environment which marginalises them. They survive only because they have to go out to face the environment and its problems each day of the week so that they and their families can survive. The wider issues of environmental considerations must, for them, take second place, for, to the average man living in developing countries and fighting for his life, concern for the environment bears no relationship to reality as he sees it.

Development of Green Belt in Coastal Areas Urged

92WN0252A Dhaka THE NEW NATION in English 6 Dec 91 p 5

[Editorial: "Green Belt in Coastal Areas Vital"]

[Text] The Environmental and Forest Minister has sought all-out cooperation from the people to develop a green belt in the cyclone-prone coastal areas. Massive afforestation of the coastal areas together with extensive tree plantation on high land mass should form the nucleus of the green belt programme. While on a visit to Kutubdia in Cox's Bazar district to see for himself the progress of the post-flood rehabilitation works on Monday, the Minister underlined the importance of coastal afforestation which would serve multiple purposes such as saving human lives as well as protecting embankments and shrimp projects.

Experiences during the April 29 cyclone show that in areas where there were mangrove forests and tree plantation on a large scale, loss of human lives was minimum and the damage to embankments negligible. Moreover, forests help maintain ecological balance in any country in addition to releasing oxygen essential for human existence. Protection of the environment itself demands concrete steps aiming at minimising the adverse effects of ecological disequilibrium. Maintenance of the coastal ecosystem through massive afforestation is, therefore, a national priority.

Meanwhile, the concept of maintaining a balance between ecology and development is gaining ground. Only last week, a representative section of scientists and experts' meeting in Dhaka expressed concern at the environmental deterioration and hammered on how to effectively counter

the trend having serious bearing on a disaster-prone country like Bangladesh. Leaving aside the most intricate aspects of the phenomenon, we must concentrate on spiking the gap so as to minimize the ill-effects and save the ecology.

It is, however, a matter of grave concern that the afforestation programme undertaken by BADC in Chapainawabganj Zone has halted at midway. In the seven-mile long and five-mile breadth area, saplings had been planted but the programme is facing a setback in the absence of proper watering and protection. Tree plantation on such a vast tract of land had bright possibilities provided realistic steps to protect and nourish the plants were taken. Digging of ponds in the project area and growing of grasses for protection against the heat of the sun seem to be nobody's business. Worse still, wanton felling of the plants by unscrupulous persons is continuing unabated.

As we appreciate the generous assistance from the United States in the shape of equipment meant to strengthen our cyclone forecasting as well as relief and rescue activities, we cannot but endorse the projected afforestation in the coastal belt. Whatever countermeasures against natural calamities are possible at national level should be taken up in right earnest. We must remember that a nation failing to do its mite can never expect foreign sympathy, assistance and cooperation. Naturally, it would be in our own interest that the entire nation comes forward to participate in massive afforestation and tree plantation in both the coastal areas as elsewhere in the country.

INDIA

Rajasthan Villagers Affected by Radiation
92WN0266A Bombay *THE TIMES OF INDIA*
in English 19 Dec 91 p 11

[Article: "Radiation Hits Rajasthan Villagers"]

[Text] Bombay, December 18—Low-level radiation from the Rajasthan Atomic Power Station (RAPS) may have led to the villagers from the surrounding areas suffering from various kinds of skin diseases, cancer and other abnormalities, according to the preliminary findings of a study conducted by Dr. Sangamitra Gadekar.

Dr. Gadekar who runs the Sampoorana Kranti Vidyalaya in Vedchhi near Surat in Gujarat, has been actively involved in fighting the hazards of nuclear energy and has organised people near Kakrapar and around Rawatbhatta in Rajasthan for the last two years.

She was in the city recently to give an illustrated talk on her study which was conducted from September 4 to 22 this year. The findings of the study will be sent to a reputed international journal, she said.

Dr. Gadekar left government service to start the Vidyalaya in Vedchhi where volunteers are trained to think of an alternate and sustainable type of a development model. It was during a cycle rally to RAPS, that she discovered that many of the problems she talked about were faced by villagers around RAPS.

Her investigations showed that there was a high degree of abnormalities in the five villages within a radius of ten km of RAPS located in Chittorgarh district. Tamlao which is the closest village and four others were surveyed by a team of 22 members and these villages were chosen for two reasons.

Dr. Gadekar said these villages were promised all basic facilities and jobs but nothing was given to them and secondly RAPS officials' when questioned did not divulge any information on whether they were monitoring emissions and leaks and whether they had any baseline data on public health.

The panchayats of ten nearby villages formed the Parmanu Pradushan Birodhi Sangharsh Samiti in 1989 and since then there has been some awareness of the hazards of nuclear power plants. The villagers now describe the plant as '*Maut ka Kuwa* (well of death).

Multiple bone tumours, unilateral hypertrophy (a disease in which one part of the body develops faster than the other), deformed children, numerous abortions, sterility among men and women, Down's syndrome, tumours in the long bones and cancer of the lymph nodes in children, were detected in the survey, she said.

The survey was conducted with the help of the Gujarat Institute of Area Planning and a team of doctors later visited the people who complained of illnesses.

A survey was also conducted in four villages 50 km away in Madhya Pradesh to assess the conditions there and treat it as a control group. About 3,000 people in all the 578 households in Tamlav, Jharjhani, Dippura, Malpura and Bakshpura were surveyed near RAPS and about 2,600 people in the four villages in the control group.

She said the medical cases would be reconfined by experts and right now the data from the survey was being processed. She also expressed her dissatisfaction at the evacuation plans for the villagers.

She said low-level radiation of tritium and leaks could contribute to the diseases among the villagers and such radiation also reduced the immunity.

Ministers Approve National Pollution Control Policy

92WN0265A Madras *INDIAN EXPRESS* in English
30 Dec 91 p 8

[Article by Usha Rai: "'Anti-Environment' Ministries Back Pollution Control"]

[Text] New Delhi—Key ministries of the government which in the public eye have the image of being anti-environment have approved the national pollution control policy drafted by the Environment and Forest Ministry. The Cabinet had sought the concurrence of these ministries. The policy is to be placed before Parliament in the next session.

Mr. V.C. Shukla, Mr. Kalpnath Rai, Mr. M.L. Fotedar, Mr. P. Sangma, Mr. H.R. Bhardwaj, Mr. Chinta Mohan and Mr. P.J. Kurien, as ministers for water resources,

energy, health, coal, programme implementation, chemical and fertilisers and industry respectively have okayed of the draft policy with some modifications.

The approval of these ministries is seen as a major victory for the Environment Ministry which has been locking horns with them on clearance for projects. Complaints of the delaying tactics of the environment ministry had reached the Prime Minister sometime ago.

The omnibus pollution control policy seeks to integrate environmental concerns into decision making at all levels to reduce industrial pollution substantially. The sectoral efforts for economic development, the draft policy says, will be more meaningful when environment safeguards are incorporated in.

The policy proposes a mix of instruments to be used for control of pollution. New legislations and regulations, fiscal incentives, voluntary agreements, educational programmes as well as information campaigns are on the anvil. The draft document also refers to noise pollution in the cities and the din created by the loud speakers. It will really be the first attempt to control noise pollution in the country.

The policy seeks to introduce the latest pollution abatement technologies at the source of pollution whether it is of air, water or soil. Due to restrictions on the release of pollutants into the air and water, dangerous chemical wastes are being dumped as solids on land. New synthetic chemicals that are biodegradable are causing concern. The existing inappropriate control responsibilities are now to be integrated.

There are proposals to intervene in vehicular pollution by changing the design and introducing technologies which check emission of carbon-dioxide.

The level of carbon-dioxide and noxious oxides in most urban centres is increasing at a tremendous pace because of the growing vehicular traffic. Sixty per cent of pollution in Delhi, the fourth most polluted city of the world, is caused by vehicular traffic. The biggest culprits are the 60,000 vehicles transiting through the capital which are not subjected to any kind of checks. There is no reference to introduction of lead-free petrol, however, in the draft document.

Arguing forcefully for a pollution control policy, the Environment Ministry has pointed out that the ambient air quality in the major cities shows that suspended particulate matter is higher than prescribed.

There is concern about the chemical and pesticide-soaked water that is running off from the agricultural fields. There is a tendency to use excess water in the hope of diluting the pollutants. Since water is a precious resource the recently introduced water cess bill seeks to control excessive use of water by charging for it. The government now seeks to move in for "clean" technologies as against "cleansing" technologies.

Natural resources like air, water and soil are seen as free goods and abused. So far, the government felt that some minimal regulation will ensure their rational use. But in heavily industrialised areas pollution has reached a critical level and water is being wasted. Since the Bureau of Industrial

Costs and Prices has found that the use of water is determined by its price, the policy proposes to use economic instruments to curb excess use of water.

In an effort to reduce pollution levels to given standards various fiscal incentives as well as disincentives are proposed. Subsidies have been proposed for small scale industries to promote common effluent treatment plants and use cleaner technologies. Depreciation allowance, excise relief and custom duty exemption are to be introduced.

"Prevention" is a key word in the proposed policy. Special attention will be given to fragile areas and those with critical levels of pollution. There is a special reference to mining in the draft policy. Not only will it not be permitted in ecologically sensitive areas but every mining project has to have an environment management as well as restoration programme.

ISRAEL

New Monitoring System To Provide Early Warning of Nuclear Accidents

TA0602130392 Tel Aviv YEDI'OT AHARONOT
in Hebrew 6 Feb 92 p 23

[Report by Yitzhaq Bar-Yosef]

[Excerpt] "A radioactivity monitoring system we are introducing these days will be capable of providing early warnings and information from independent sources if predictions of more nuclear accidents in the former USSR materialize," Dr. Shmu'el Brenner, acting Ecology and Environmental Protection Ministry director general, who is also in charge of radioactivity-related affairs, said yesterday.

The new monitoring system will test radioactive presence in the air. It will sound an alarm in the event of an accident in a nuclear installation outside the region, if the radioactive fallout is liable to reach Israel.

The innovative monitoring stations are situated in Ramat Hovav in the south, in the area of Kfar Hasidim in the Haifa Bay area, in Jerusalem, and in Tel Aviv. They were assembled by Rotem Industries, a subsidiary of the Nuclear Research Center in Dimona.

Up to about a year ago, a less up-to-date monitoring system was used for research and follow-up. The system was operated by Nahal Soreq Nuclear Research Center personnel, until the Ecology and Environmental Protection Ministry decided to build a system capable of sending real-time warnings to the national data center in Tel Aviv. The system began operating a short time ago; it will be fully operational in June. At present, three of the four monitoring stations are operational; the fourth, in Jerusalem, is expected to be operational soon.

All the monitoring stations are linked with the central computer and relay real-time data to the national data center in Tel Aviv. When the system is completed, the computer will use a radio connection to alert personnel at the Research Institute for Environmental Health at any hour in the event of an increase in radioactivity in the air. [passage omitted]

Unified Ecological Policy Urged for CIS

92WN0257A Moscow PRAVDA in Russian 4 Jan 92 p 1

[Article by Roald Fedorov: "Nature Votes for Unity"]

[Text] We live on a cramped Earth, and with all the national sovereignties we have an acute need for unity of action in the natural environment, which does not recognize frontiers. This is how one can comment on three important protocols that were signed at the end of December in Minsk at the meeting of the heads of independent states. But no less important is the necessity of the fulfillment of their concrete content.

Our Commentary

One of the protocols is about the preparation of a special agreement on the preservation of the fish resources of the Caspian Sea. The most valuable of these resources are the sturgeons, the trade in which yields about 90 percent of their worldwide catch. In the difficult present conditions, the Caspian Sea functions as an important foreign currency shop that produces valuable export products—black caviar, balyk [cured filet of sturgeon].

But the living wealth of the sea can easily be squandered, plundered one time and destructively. Four republics—Azerbaijan, the Russian Federation, Kazakhstan, and Turkmenistan—face the shores of the Caspian Sea. The fish "roams" through the expanse of the entire sea. It would seem, draw the boundary lines on the basis of its areas of water and fish "your own" schools of fish. But scientists have long ago demonstrated that the sea catch of the sturgeons disastrously depletes their stocks. They must be caught in the rivers, where the adult and only the adult fish go to spawn. Since they gave up fishing for sturgeons in the Caspian Sea, the catches of the red fish (this is what they call the sturgeons, not for the color, but for the quality, for the "red" price) and its stocks began to increase. Incidentally, in the Sea of Azov they did not follow these recommendations. And among the simple reasons for the impoverishment of the riches at one time of the fish basin itself, the sea catch of sturgeons did not play the last role.

However, the main part of the Caspian sturgeons go to spawn in the Volga (Russian Federation) and in the Ural (Kazakhstan). Some in the Kura (Azerbaijan). In Turkmenistan there are no rivers at all that flow into the Caspian Sea. Thus, in order for there not to be any temptation to fish for sturgeons in the sea, the river catches of them and the proceeds from their sale in foreign markets must be fairly divided.

In the protocol on the Aral Sea and Spitak, the heads of the Commonwealth states talk in essence about their readiness to take part in agreements concerning the problems of the Aral Sea, which are being prepared by the governments of Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan, and Uzbekistan, and concerning the problems of overcoming [the consequences of] the earthquake in Spitak, which will be prepared by the government of Armenia.

Yes, we live on a cramped earth. And very often we talk about our common economic space. But there is as much of a common ecological space. The Aral Sea lies in the territory of only two republics—Kazakhstan and Uzbekistan. But the salt from the dried-up bottom of the impoverished sea is scattered for thousands of kilometers from here, it covers the steppe pastures and the arable land of the foothill valleys of all of Central Asia and Kazakhstan, and it undermines their fertility. The ecological misfortunes, for example, of Bashkiria, "stuffed" with chemical and petrochemical industries, through the rivers Belaya, Kama, and Volga, certainly affect the same Caspian islands. And vice versa: If, in the reserve at the Caspian Sea—let us say, the Krasnovodsk Reserve—the waterfowl wintering here are not protected, this affects the well-being of the northern tundras and the peoples living there. The Commonwealth of Independent States needs a coordinated ecological policy. One would like to believe that the mentioned protocols will become its first pages.

Lemeshev Views Effects of Economic Crisis on Ecological Issues

92WN0257C Moscow TORGOVAYA GAZETA
in Russian 14 Jan 92 p 3

[Interview with M. Ya. Lemeshev, scientist and developer of ecological-economic models, by Correspondent L. Glazkova: "Ecological Boundlessness"; time and place not specified]

[Text] [Lemeshev] For all who are now studying the problems of preserving the environment, and thus preserving the health of people, it is very difficult to work in the conditions of the complete breakdown of the economy. The persons who make decisions are not fully aware of the importance of the preservation of nature as the chief condition for the normal life of people. Their argument: There is no fat when there is nothing with which to feed the people. But this, I will tell you, is the most genuine demagoguery, painted in populist colors. How is that we are too involved with other things to be concerned with nature, when more than 70 percent of the children are ill precisely because of ecologically unhealthy food, water, and air?

[Correspondent] Excuse me, what are you more: an economist or ecologist?

[Lemeshev] I am an ancient market advocate, already since the 1960's, when, together with G. S. Lisichkin, V. A. Morozov, L. N. Kasirov, I. N. Buzdalov, and others, I came out with for that time seditious ideas—for which we were attacked by official science. Understand, economics is only a means for securing the well-being of people. And it is inconceivable if economics is developed, but nature is destroyed. Both of these components I look at in one connection, which is what my ecological-economic models are based on.

To be brief, the essence of my approaches consists of the following. The existing structure of our economy is not able to introduce us into the market. It must be changed, but this cannot be done without strict state regulation.

Judge for yourselves. We do not have an efficient light and processing industry, after all, or equipment and roads for the normal operation of a farm economy. On what will the peasant work: On a K-700, which ruins the soil?

[Correspondent] Yes, but, you know, the breakup of the systems of economic administration is proceeding at a rapid pace. Will this not in and of itself entail subsequent structural changes?

[Lemeshev] By no means. There was the ill-starred Ministry of Land Reclamation and Water Resources [Minvodkhoz], then it became Minvostroy [not further identified], and then a concern—and already in the structure of the governmental organs of Russia. And in Central Asia, as before, the question is raised about the resumption of work on the redirection of Siberian rivers.

[Correspondent] Still?

[Lemeshev] Of course. The other day, the Moscow roundtable of independent scholars completed its work, where we issued a statement to the effect that a market without strict state regulation is impossible. The breakup of the state structures puts off the possibility of entry into the market.

[Correspondent] Who is "we"?

[Lemeshev] A group of scholars, economists, which was formed back in 1988, when a statement against the project of a 60 percent tax on the profit of enterprises, introduced by Ryzhkov and Abalkin, came to be our action. Today the Russian parliament adopted the variant we proposed—34 percent.

[Correspondent] Are you a pessimist?

[Lemeshev] No. I am an optimist and I believe that, if we succeed in stabilizing the situation within the next two years, then sometime in the next decade we will be able to improve the economy. But on the condition of its serious structural reorganization.

Up to now, under other names, structures are concealed that ruin the economy and nature. Not only the Ministry of Water and Land Reclamation, but also the Ministry of Atomic Power and Industry and chemical and gas concerns oriented to gigantic volumes of extraction and the sale of our resources abroad at low prices. The other day, I spoke in Milan at the Council of Europe, where I cited the following figures: France produces 57 kilograms of oil per inhabitant per year, we produce 2,100. Consider, we, with only five percent of the world population, produce 20 percent of the oil! And in our country the tractors and combines stand idle, there is nothing with which to transport the harvest from the field. The same thing with gas, timber, gold, etc. We make poor use of things, and we sell a great deal. Now they have already begun to trade in land resources and territories. What kind of a transition to the market is this? This smells slightly of the colonial spirit. And what does foreign capital understand by the development of territories? The pumping out of natural resources, the utilization of cheap labor, the investment of polluting factories.

[Correspondent] Can you cite concrete examples?

[Lemeshev] They are known to many. French firms will play the master in the especially oil-rich and gas-rich region of the Eastern Caspian. In the Far East, fish and timber resources are being sucked off. From the free zones, not only felled trees but also the soil stratum are being exported. Economic boundlessness goes over into ecological boundlessness. For this we are paid off with belongings and [not legible]. We have returned to the pre-capitalist epoch of barter. And we keep saying all over again: We are moving toward the market. And where have you seen such a market where prices and wages would not be regulated? Remember Japan, the United States, and the countries of the Common Market. The whole production there is regulated to the ton, to whom, how much, and what to sell, quotas for every state: For meat, milk, wine, etc. Yes, there overproduction is taking place, and in our country—underproduction, so that more regulation is all the more necessary.

[Correspondent] Let us return to ecology. You are a convinced opponent of atomic power stations? But, you know, we are not suffering from the overproduction of electric power.

[Lemeshev] Nonsense. Atomic power stations produce only two percent of the energy resources. And we can reduce 50 percent of the expenditures of electric power if we give up a multitude of economically unnecessary and ecologically harmful energy-intensive factories.

[Correspondent] Yes, we will close some chemical combine and we will have the next shortage, as has already happened, now with medicines, now with plugs, now with wash powder. . . .

[Lemeshev] Well, this shift of guilt from the powers that be to the movement of the "greens" has already become a standard method. Here, they say, who is to blame for the fact that the drug cases are empty. And during this time they are selling ginseng, magnolia vine, maral antlers, and herbs. Through the "greens" the public is expressing not only its vital ecological interests, but also manifests itself as a civil force that is becoming more active. This is very important. People are beginning to realize that a great deal depends on them. And not only in ecology, but also in all spheres of everyday life. It is necessary to understand that there is no point in placing our hopes on the state; salvation is in our own hands.

Unified Meteorological Service Faces Doubtful Future

92WN0277A Moscow PRAVDA in Russian 3 Feb 92 p 3

[Interview with Yuriy Stepanovich Sedunov, conducted by Tamara Smirnova: "A Cyclone Can Cross Any Border": "Who Will Predict the Weather Tomorrow? The Question Is Still Unresolved"]

[Text] The reason for my visit to the main weather headquarters was a concerned letter from Yu. Zheltikov in

Samara. Zheltikov, head of the Volga Regional Hydrometeorological Administration, posed the question point-blank: do we need a meteorological service?

It is sad and embarrassing to realize how low we have sunk. In the hard year of 1921 a decree was signed creating a meteorological department in Russia, and during the terrible war years the service continued to develop and was just as good as in other countries. Yet in peacetime the state is not able to finance this undemanding and technically ill-equipped branch. For an explanation I went to Yu. Sedunov, a person who has worked in meteorology for decades. His is a difficult mission: to head the commission dismantling the USSR State Committee for Hydrometeorology.

[Smirnova] What happened, Yuriy Stepanovich? How can you explain the present situation?

[Sedunov] It is due to dilettantism and chaos in government structures. Add to that the fact that our state has never been that generous with meteorologists. The great bulk of the meteorological observers scattered across the country have always lived on the verge of poverty. Airport meteorologists are in an especially difficult position, and their situation has worsened year after year. The weather forecasters who worked at airports saw that Aeroflot paid its personnel better and gave them certain benefits.

Last year the Pavlov government introduced a special system for financing organizations receiving money from the state budget, paying salaries in full but cutting out all other expenditures. The cabinet called those maintenance expenditures, but for us they are a vital part of our day-to-day work: paying for communications channels and buying photographic paper and other materials. When our allocations were cut by 25-50 percent we were forced to cut back the observer network and eliminate certain stations and posts.

[Smirnova] In late 1991 the decision was made to eliminate the USSR State Committee for Hydrometeorology, and the Russian Hydrometeorological Service became a division of the Russian Ministry of Ecology and Natural Resources. Many people are saying that this was an overly hasty and completely unjustified decision. What do you as an experienced professional think?

[Sedunov] The meteorological service is a unified organism, and in my opinion it is inappropriate to divide it up. We have many services which are the only ones of their kind. How can one divide the research fleet up among the former republics? We have constantly been doing oceanic work, and that work was supported by 30 large ships and 300 smaller craft. For example, there are eight oceangoing ships now in port at Odessa which were used to study the Atlantic. Who will get them? And what about our space system? There are three satellite information collection centers in Russia, and one in Tashkent...

We felt that the CIS should definitely have a unified meteorological system. But things turned out differently.

The Russian Hydrometeorological Service has been crammed into the Ministry of Ecology and Natural

Resources along with five other committees: on forests, geodesy and cartography, etc. What we now have is a complicated conglomerate, the mechanism for internal interaction of which is not yet clear. The committee's structures have not even been created. Generally speaking, complete uncertainty prevails, and that was what Zheltikov was addressing in his letter. Suffice it to say that in November and December our specialists did not get paid. The decision has been made to fund us on a monthly basis, but price liberalization and rising inflation were not taken into account.

[Smirnova] Yet still your service has not fallen apart?

[Sedunov] It is holding on. I must admit that I was actually surprised how durable and resistant it has proved to be. It has such devoted people working for it! Consider the fact that those in our huge army of rank-and-file observers get an average monthly wage of R250 [rubles]. We have scrapped all our plans for technical reequipping and we have sharply curtailed our research work. The heads of our most important divisions are meeting in Moscow right now. They have been authorized by their collectives to declare that a warning strike will be carried out in February and an indefinite strike in March. A strike committee has been set up.

[Smirnova] The weather forecasters intend to go on strike? That is probably unprecedented anywhere in the world—this should go in the "Guinness Book of World Records."

[Sedunov] You do not believe it? Then take a look for yourself. These are telegrams received in support of the decision to strike... I do not think that this strike will be a major event against the backdrop of general collapse, but it will strike hard at a number of sensitive points. I am referring primarily to aviation. As you are aware, each time a plane takes off its crew receives a weather forecast and takes action accordingly. The unavailability of forecasts will force Aeroflot to ground all flights. The power industry, railways and water transportation are also seriously dependent upon our forecasts, especially in the wintertime. Yet we are barbarically dismembering a well-established system for broadcasting meteorological information. I find that absurd and unnatural. The scale of meteorological phenomena is huge—they cross national borders. If a cyclone is on the move, it can cover thousands of kilometers. Even if the small sovereign states do create their own meteorological services they will not be efficient or cost-effective.

In Europe 20 states reached agreement and established a unified center for mid-range meteorological forecasts. They went in together to purchase equipment, established communications channels and created an international team to service the center, and now they are providing everyone with weather forecasts. And what are we doing? Are we going to go our own way, like always?

Official on Problems of Unifying Nuclear Power Industry*LD0102220992 Moscow TASS International Service in Russian 0830 GMT 29 Jan 92**[By TASS correspondent Lyubov Dunayeva]*

[Text] Moscow, 29 Jan (TASS)—“Drawing up an interstate agreement on the integration of the nuclear industry is one of the paramount solutions to the problem of security in this area, while the structure for running the nuclear power complex of the former USSR is in a period of change”, thinks Andrey Gagarinskiy, deputy director of the Kurchatov Atomic Energy Institute and executive secretary of the Nuclear Society, which brings together experts and enterprises in the Commonwealth of Independent States [CIS] states, as well as Georgia, Latvia, and Lithuania.

“This document”, he told a TASS correspondent, “should make provision for a regime of safe development with regard to nuclear power in the Commonwealth, control systems for the production and distribution of nuclear and radioactive materials, the implementation of a single policy of ecologically safe handling of spent nuclear fuel and the localization of radioactive waste, fulfilling international obligations on the peaceful use of nuclear energy, regulating the export and import of nuclear materials, and the non-proliferation of nuclear weapons. The CIS states must take upon themselves the financing of research and design work to create prospective safe nuclear installations and fundamental research in atomic science, equipment, and technology.”

The economically profitable and safe generation of power can be ensured and the defense capability of the Commonwealth states maintained only while maintaining all the industrial ties in the nuclear industry complex situated on the territories of virtually all those participating in the Commonwealth, Andrey Gagarinskiy noted. The production of plutonium and enriched uranium, and the whole nuclear weapons production cycle are located in Russia, uranium pellets are made in Kazakhstan, and the mining industries are situated in Ukraine, in Central Asia, and in Kazakhstan. This is why understandable concerns arise among our Western partners.

A nuclear power industry fully supplied with fuel and with a compact, well-designed technological cycle, could be a stabilizing factor in the economic and energy situation in the Commonwealth, the scientist believes. Assessments of the power and ecological balances in Armenia, Central Russia, the Kola Peninsula, and Kazakhstan have demonstrated that without new nuclear power generating capacities, normal life is virtually impossible for the population of these regions.

Swedish Experts Assess Accident Prospects at Nuclear Power Stations*PM0402150192 Moscow IZVESTIYA in Russian 3 Feb 92 Morning Edition p 4*

[Marat Zubko report: “Risk of Accident at Soviet Nuclear Electric Power Stations 100 Times Greater Than at Western Stations, Swedish Experts Believe”]

[Text] Stockholm—A group of experts has returned to Sweden with depressing conclusions. Represented on the group were staffers of the Atomic Power Inspectorate and the Institute for Protection Against Radioactivity, who familiarized themselves with the activity of nuclear electric power stations [AES] and other installations in Russia, Lithuania, Latvia, and Estonia. It is their opinion that the risk of an accident at AES's in the former Soviet Union is “hundreds of times greater than at nuclear stations in West European countries.”

Of course, the Swedish specialists' conclusion certainly should not be understood in such a way that a new accident might happen in our country tomorrow or the next day. Nor, to all appearances, should we plunge into excessive pessimism. But the situation is alarming. Lars Hogberg, general director of the Atomic Power Inspectorate, explains it as follows: “We regard the chance of an accident occurring at AES's in the former USSR as one in 1,000, and at Swedish stations as one in 100,000...”

The specialists were particularly concerned about the AES's at Sosnovyy Bor near St. Petersburg and at Ignalina (Lithuania). They reckoned that the safety system at those stations is not as good as is required by modern yardsticks. In particular, protection against a possible fire is poor.

In principle, two of the four reactors at the Sosnovyy Bor AES ought to be shut down, and both reactors at Ignalina should be substantially modernized, the Swedish experts believe. On the whole, they regarded the AES's as obsolete in many respects.

True, one thing is comforting: The guests had no doubts about the qualifications of the AES staffers. Nevertheless, the Swedes could not fail to notice that the nuclear power situation in the states which have emerged in the area of the former USSR is exacerbated by the overall economic crisis and disruption.

Yes, the experts' report states, plans exist to update the AES's in Russia, Lithuania, and other independent states in the nineties, but there are doubts about the reality of their implementation. Why? Because there are insufficient funds, the personnel are preoccupied with the “pursuit of sustenance,” and suppliers now demand hard currency for equipment. In conclusion the report points out the following alarming fact: Highly qualified AES specialists are beginning to move to other places to work, particularly to industrial enterprises where wages are higher.

According to the Swedes' data, 34 nuclear reactors of the Chernobyl AES type are operating, in all, on the territory of the fragmented Soviet Union. Of course, it is difficult to stop them working. The members of the expert group themselves maintain that the closure of the Sosnovyy Bor station, for example, will leave the entire St. Petersburg region without electricity.

All the same, something has to be done. According to the Swedish observers' assessments, trouble could occur at any time. The reaction of the Swedish authorities to these conclusions is significant. On the basis of the report they have decided to carry out work in two areas. First, along

the lines of preparing Sweden's public for the possibility that an accident could occur somewhere not far from its borders. Second, Stockholm has decided to consider seeking funds to give Russia and other states assistance in modernizing their AES's. This is understandable. The consequences of a possible disaster will inevitably affect other countries. This is why the authorities of many states are now speaking increasingly actively of the need for such assistance.

Nuclear Weapons Expert Warns of 'New Chernobyls'

PM0402112492 Moscow KOMSOMOLSKAYA
PRAVDA in Russian 4 Feb 92 p 3

[K. Belyaninov report incorporating interviews with Boris Gorbachev, former chief of nuclear weapons design department, and unidentified designer: "Dropping a Bombshell"]

[Text] As it happens, to this day we do not know what to do with the Czar-Cannon [16th century gun, never fired, now on display in the Kremlin], although it is 500 years since they imposed a moratorium on testing it.

In the old days everything was simple. The country rolled smoothly on its way from one labor achievement to the next, and even nuclear explosions were used as a kind of educational visual aid. In 1949, for instance, when the Soviet Union had only just begun to test weapons in the steppes near Semipalatinsk, teachers at nearby schools used to take the children outside, point to the mushroom cloud on the horizon, and say: "Look, children, that's where they are forging a secure shield for our Motherland."

They were forging quite a big shield, too. In the last 40 years, according to American figures, 818 explosions were carried out at two test ranges alone—the Semipalatinsk and Novaya Zemlya ranges; the number of nuclear charges is reckoned in hundreds of thousands, and as for secret cities engaged solely in weapons production, as many as 87 were built.

"The situation our nuclear arsenal is in now is frankly disastrous," claims Boris Gorbachev, who worked for more than 25 years as chief of a design department for the development of nuclear and thermonuclear weapons. "Whereas formerly we could at least maintain our munitions at a level dictated by the country's and people's security, now this is almost impossible. The weapons improvement program has been wound up and test ranges closed, and that means that production has halted and thousands of specialists will be out of work. Back in 1986 the country's only nuclear research centers—the institutes of theoretical and experimental physics—were deprived of centralized food supplies, then budget finance was cut by a third, and recently they were transferred entirely to market relations 'within the framework of conversion'! But a nuclear production facility is not a plant manufacturing warplanes which in principle could produce vacuum cleaners as well. We have nothing to offer except weapons, and much as you might like to, you cannot barter them for meat. Therefore you have to destroy everything that has

been built up over the decades, and then you can start from scratch making baby carriages. As a result of all these decisions irreplaceable experts are leaving the facilities."

At the very beginning of perestroika it immediately became clear that such an extensive nuclear shield was not really appropriate to the officially declared peaceful aspirations of the new leadership. Then a one-year moratorium was imposed on all weapons tests and world public opinion was listened to keenly.

True, the public showed no particular enthusiasm, and Richard Perle, then U.S. assistant secretary of defense for international security policy, even went so far as to observe that "the development of weapons systems that are really safe in storage is impossible without nuclear tests."

"The problem of nuclear and thermonuclear weapons is by no means exhausted with the declaration of a moratorium, the closure of test ranges, and the creation of nuclear-free zones. We announced to the whole world our plans for the destruction of tactical nuclear weapons, but nothing is being done in this direction, and in the context of the loss of irreplaceable experts, in a year or two this problem will be totally insoluble," a designer who wishes to remain anonymous believes. "You simply cannot find people who possess sufficient experience and knowledge. A nuclear bomb is not a tank that you can calmly mothball and dump somewhere in the steppes. A large quantity of radioactive components and the elements in them have a life of their own, giving off very powerful radiation, from which, incidentally, we have yet to learn to protect ourselves.

"Judge for yourself. In order to neutralize a nuclear weapon, first you have to remove the radioactive materials, and only then can you blow up the very powerful explosive materials. One part of a weapon, for instance, is a small ampoule in which, with the passage of time, the pressure of radioactive gas increases. The ampoule is hermetically sealed, but even so its durability is limited.

"It has to be opened and destroyed without allowing a sudden discharge of gases and contamination of the area. This can only be done by those who manufactured the article and those who can make the necessary equipment—designers and technologists. In all our centers there are not more than 500 such experts. Now they are leaving too. And if you take into account that the number of these ampoules is reckoned in tens of thousands, and they are scattered around naval and army units, bases, and dumps throughout the country's territory, it becomes quite clear that in the very near future hundreds of 'Chernobyls,' big and small, can be expected."

The nuclear shield that was forged so zealously over more than 40 years has turned out to be well and truly cracked. The state's technical and scientific potential dictated its own terms, and the weapons, which at one time met the very highest criteria, are now approaching the critical point. It has been a kind of historical tradition for our state not to pay too much attention to people's safety. The radiation levels that exist on Soviet submarines, for instance, are deemed unanimously by U.S. experts to be unacceptable for the health of the crew.

Meanwhile, at a session of the U.S. Senate Foreign Relations Committee back in May 1986, it was stated that "thanks to the program of perfecting and testing nuclear weapons, several thousand fewer nuclear weapons are now stored in U.S. arsenals than in 1960, their total yield adds up to one-fourth of what it was 30 years ago, and the safety level has increased several times over..."

[Unidentified interviewee] "If you were to draw parallels, the comparison would not be in our favor. First, we cannot improve our weapons because the test ranges are closed and 'real-life' tests have stopped. For the same reason we cannot check on how safe our weapons are in storage. The Americans have reduced the number of their tests to a minimum because they can mathematically model the 'behavior' of weapons using computers, and are, incidentally, continuing to develop third-generation weapons that we can only dream of. We do not have that possibility: The total capacity of our computer centers is several times smaller than the Americans', and our computers are not technically capable of coping with such work. As a result, operations that they can carry out in a day or two take us three months, with the machines working at full capacity and the experts working flat out, 10-15 hours a day.

"Also, there are still weapons in our arsenals that were produced in the fifties and sixties. Although they are imperfect and not very reliable, no one has ever considered destroying them."

[Belyaninov] "Do you think an accidental explosion is possible?"

[Unidentified interviewee] "Of course. There are now 300,000 homeless officers in the army, and a man who is simply tired out because of the trials of daily life may easily make a mistake when carrying out routine inspection and maintenance work on nuclear weapons. As a result the detonator capsule will go off—and in the old models they are highly imperfect—and there will be a mighty explosion of the explosive material. That will not cause a chain reaction in the nuclear 'stuffing,' but pieces of radioactive materials will be scattered over a radius of tens of kilometers."

The former theories of "nuclear deterrence" and international balance, according to which the two nuclear superpowers—the USSR and the United States—counterbalanced each other, making the situation in the world comparatively stable, have by all appearances gone forever. Soviet defense systems, designed in response to the probable adversary's latest weapons, will become absolutely useless in five or six years, in view of the fact that no country in the world has yet stopped its weapons development program. And if you remember that plans for the development of a "nuclear bomb for the Arab world" have already been announced, a scenario that today seems somewhat ridiculous will become entirely possible: some future Saddam Husayn will dictate his terms to the present Commonwealth.

Russian Federation Ecology Officials Appointed

92WN0257B Moscow *LESNAYA GAZETA* in Russian
11 Jan 92 p 1

[RSFSR Decree: "On the Chairmen of the Committees of the Ministry of Ecology and Natural Resources of the Russian Federation," issued 4 January 1992]

[Text] Decree of the President of the Russian Federation: 'On the Chairmen of the Committees of the Ministry of Ecology and Natural Resources of the Russian Federation'

To appoint:

Nikolay Dmitriyevich Zhdanov chairman of the Committee for Geodesy and Cartography of the Ministry of Ecology and Natural Resources of the Russian Federation;

Yuriy Feliksovich Zubov chairman of the Committee for Hydrometeorology and Environmental Monitoring of the Ministry of Ecology and Natural Resources of the Russian Federation;

Nikolay Nikolayevich Mikhayev chairman of the Committee for Water Resources of the Ministry of Ecology and Natural Resources of the Russian Federation;

Viktor Petrovich Orlov chairman of the Committee for Geology and Mineral Resources of the Ministry of Ecology and Natural Resources of the Russian Federation;

Valeriy Aleksandrovich Shubin chairman of the Committee for Timber of the Ministry of Ecology and Natural Resources of the Russian Federation.

[signed] President of the Russian Federation B. Yeltsin
Moscow, Kremlin, 4 January 1992.

Yablokov on Shaping Russia's Ecological Safety Policy

LD2301142592 Moscow *Mayak Radio Network*
in Russian 1441 GMT 22 Jan 92

[Excerpt] [Unidentified announcer] In Moscow today, there was a news conference by Aleksey Vladimirovich Yablokov, state counselor of the Russian Federation for Ecology and Health and chairman of the Coordinating Council for Ecological Policy of the Russian president's office.

The news conference was attended by my colleague Aleksandr Ruvinskiy, so let's hear what he has to tell.

[Ruvinskiy] The news conference was about the shaping of a Russian ecological safety policy. One of its main components is the solving of the problems of ecological disaster zones. So far, such zones have been officially named as regions in Russia that are especially polluted as a result of the Chernobyl catastrophe and regions of radioactive pollution in the South Urals.

But without any doubt, some territories of the Volga region, Kuzbass, Central Yakutia, Amur, Krasnoyarsk Kray, and the Kola Peninsula should be listed under such zones.

Indeed, practically every one of our autonomous republics and oblasts has bits which could be called zones of extreme ecological disaster.

[Announcer] And our big cities?

[Ruvinskiy] And big cities too, of course. And Yablokov thinks unjustifiably little attention is now being given to the aspect of ecological safety concerning the increase in the risk of industrial catastrophes. I'll name just one example: Annually in the country there occur up to 700 major fractures in oil and gas pipelines. Incidentally this causes, according to some estimates, losses of up to 20 percent of all the oil we extract. According to forecasts, in 20 years more than half of the territory of Moscow, for instance, will be in danger from groundwater [opasno podtopleny] and even now, on average, 10,000-15,000 rubles per urban resident is spent annually on saving the existing buildings in various towns of Russia.

And one of the most important aspects of ensuring ecological safety is preventing the deterioration of the health of our population. Facts were cited: the average life expectancy in Russia reached its maximum in the mid-60s when it amounted to 70.4 years and then it fell to 67.6. In the United States, the average life expectancy is now 6 years more than ours, and in Japan it is 8 years more. Forty percent of the men who died in Russia in 1990 were of working age.

Another aspect of this problem: 30 percent of food products in 1989 were dangerously polluted with chemicals, and the water now in 75 percent of rivers and lakes is simply not suitable for drinking.

In January of this year, on the instructions of the president, a Coordinating Council for Ecological Policy was set up led by Yablokov. One of its main tasks is to combat the dangerous trends which have been noted. One of these is the replacement of departmentalism by parochialism. Previously departmentalism did enormous ecological harm and now parochialism does. The right of ownership of resources, Yablokov believes, does not mean the right to do what you like with them uncontrolledly.

At the news conference, a question was especially noted which now needs urgent address. This is better organization of the nature protection service, immediate improvement in the work of monitoring the state of the natural environment, and also further improvement of the system of protection of the population from especially dangerous toxins. Facts were cited which were really tragic, but this news conference had its consolations in that in Russia, despite all the economic troubles now being experienced, ecology has not been forgotten and is still the center of attention. [passage omitted]

And there is another danger threatening us, A. Yablokov went on—the inadequacy of ecological legislation. For example, the management of natural resources by local organs of power often leads to their predatory destruction. (For the sake of comparison, a forest owner in France does not have the right to fell trees without the appropriate

authorization of the organs of power). Therefore the definition of the balance of interests between the owner of a specific territory and the state as a whole remains an urgent task.

Replying to an IZVESTIYA correspondent's question concerning the elaboration of a mechanism to protect the environment against destruction, A. Yablokov noted that a new concept is being drawn up in this sphere. It is based on principles of charges for the utilization of the environment, and payments for pollution and disruption of the ecological balance. It is not a question of fines exacted for damage caused, but, just like in all developed countries, of compensation for this damage, which is immeasurably greater than any fine. However, the key factor of the state policy for improving Russia's ecological situation and the population's health will be the implementation of every citizen's right to a healthy environment. In the United States, for example, some 1,500 people are annually suing enterprises which have damaged their health. Only one-third of the suits are successful. Nonetheless, producers live under the sword of Damocles, so to speak, insofar as huge sums of money are involved (which may mean bankruptcy). And this forces them to conduct their business in civilized fashion. For the time being, we are the most polluted inhabitants of Europe, the state counsellor said, but we will take the route of developed countries, he emphasized.

Yeltsin Decrees Formation of Atomic Energy Ministry

*LD0602211492 Moscow RIA in English 1622 GMT
6 Feb 92*

["Decree of the President of the Russian Federation on the Ministry of Atomic Energy of the Russian Federation," issued 29 January 1992]

[Text] Bearing in mind the role of nuclear armaments and the atomic power industry in securing the defence and energy potential of the Russian Federation and the need of succession in the fulfilment of international obligations and guarantees in the field of nuclear weapons, the atomic power industry and nuclear technologies, and also mindful of the nuclear, radiation and potential general technical hazard of enterprises and organizations of the nuclear complex of the Russian Federation, and meaning to ensure their stable functioning, I hereby decree:

1. To form a Ministry of Atomic Energy (MINATOM) of the Russian Federation.

To establish that the Ministry of Atomic Energy of the Russian Federation shall be the successor to the defunct Ministry of Atomic Power Engineering and Industry of the USSR in what concerns the interests of the Russian Federation.

The Ministry of Atomic Energy of the Russian Federation shall:

—Ensure nuclear and radiation safety of the nuclear complex,

- organize and implement state regulation of the operation of enterprises and organization of the nuclear complex of the Russian Federation,
- implement the state scientific and technical, investment and structural policy in the sphere of nuclear power engineering,
- ensure the development and implement the programs to develop, modernize, manufacture and reduce nuclear weapons, to dispose of radioactive wastes and to implement systematic conversion of the nuclear complex.

2. Given the need to ensure the state monopoly on the production of nuclear weapons, to empower the Ministry of Atomic Energy of the Russian Federation to control the production and destruction of nuclear weapons at enterprises and objects in accordance with the list to be drawn up by the Government of the Russian Federation.

3. The Ministry of Atomic Energy of the Russian Federation shall:

- Accept from the abolished Ministry of Atomic Power Engineering and Industry of the USSR the buildings, structures and other property (including that used on leasehold conditions) and assets and educational institutions, organizations and economic objects located on the territory of the Russian Federation,
- for ensuring non-proliferation of nuclear materials and corresponding technologies and stable and safe operation of organizations and enterprises of the nuclear complex, carry out within three months negotiations together with the ministries and departments concerned with the corresponding bodies of other member-states of the Commonwealth of Independent States and other sovereign states which were once Union republics of the USSR on the establishment of common coordination and consultancy mechanisms in order to guarantee safe use of atomic energy,
- draft and present for approval by the Government of the Russian Federation within a month's time a list of legislative and other normative acts on guaranteeing safe use of atomic energy,
- present within two months' time proposals on preserving the existing production and technological links of the complex, including the supply of its social units, with due regard for the development of market relations and the anti-monopoly policy,
- submit proposals within a month's time together with the Ministry of Economics and Finance of the Russian Federation on the provision of a quota to enterprises of the nuclear complex on the export of general-purpose products with a view to partially meeting the demand for imported materials and equipment to ensure safe operation of the existing production works and systematic conversion of production for civilian purposes.

Minmorflot Official Details Nuclear Waste Dumping in Northern Seas

*92WN0244A Moscow IZVESTIYA in Russian
13 Dec 91 p 7*

[Article by V. Belykh: "Daddy, Daddy, Our Networks Hauled Uranium-235: Data on Radioactive Graveyards in Our Northern Seas Kept Secret to This Day"]

[Text] "Why are you provoking me? I repeat, I know nothing about underwater burials of any nuclear reactors whatsoever..."

My discussion with Anatoliy Belov, chief engineer for Glavsudomekha of the nuclear fleet of USSR Minmorflot, ended on this unfriendly note. I was led to him in a cramped little room on Moscow's Shabashvskiy Lane by USSR people's deputy Andrey Zolotkov's sensational report that the Soviet Union has been discarding radioactive wastes in the sea in the area of Novaya Zemlya over the course of more than 20 years.

This was stated at a press conference in London and made a shocking impression in the West. After all, for many years (the last time was in 1989) we have been assuring the world that we have never dumped radioactive wastes in the sea.

So what exactly does lie in deep near our northern islands?

"It can be called deep only relatively," Andrey Zolotkov explained. "Many countries in their time have 'sinned' with such burials. However, they sank their containers about three-four km under the water, while ours are at from 30 to 400 meters."

By Zolotkov's estimates, associates of the radioactive safety service of the Murmansk Marine Steamship Line sank no fewer than 11,000 containers of radioactive waste in the vicinity of Novaya Zemlya from 1964 to about 1986. He considers his data far from complete. After all, he obtained them by familiarizing himself with the secret reports of ship captains, who carried out burials of radioactive wastes only for their own steamship line. According to these data, it seems that allegedly middle- and low-activity wastes—contaminated work clothing, covers, instruments, and equipment parts—were dumped in the sea. Meanwhile, it is hard to judge whether this is so. There is reckless discordance in reports on the nature of the load. Sometimes a load is measured in tons, sometimes in "pieces," sometimes in curies... Neither the volumes nor the nature of the radiation are clear. Really, the attitude toward the dangerous containers, especially in the beginning stage, was rather casual. When some containers did not sink, they shot them or punched holes by hand in order to fill them with water... One can only guess how many people were irradiated and to what extent, using such "technology."

In Zolotkov's opinion, a total study of the regions where radioactive wastes were sunk will never be made. In fact, it is now difficult even to find traces of many containers. Corrosion and currents have played their role. Probably, it

is possible to discover only a vessel, packed with containers and sent to the bottom whole, and two barges which shared the same fate.

True, in 1984 a "stray" container with a radiation level of 160 roentgens per hour was discovered unexpectedly at a shallow depth in one of Novaya Zemlya's bays. After additional processing, they sank it again.

The radioactive wastes were interred with the help of the nuclear-technological service's special ships, the "Lepse," the "Volodarskiy," and the tanker "Serebryanka." Each completed about one-three operations a year. Right now they are based in Murmansk. The "Lepse," on which, besides the rest, processed nuclear fuel was kept for about three years before being sent to Chelyabinsk for regeneration, has already been decommissioned and is being prepared for so-called "safe storage." Part of the vessel has already been encased in concrete. True, emergency nuclear fuel from ice-breakers has remained on the "Lepse" and is impossible to extract: It has to be preserved along with the worn-out ship.

The "Volodarskiy" is also being used as a storehouse for spent nuclear fuel.

However, the most unpleasant thing, according to Andrey Zolotkov's information, is that a reactor structure from the nuclear ice-breaker "Lenin" along with part of its spent nuclear fuel (let me remind you: precisely such fuel is the most dangerous) was sunk near Novaya Zemlya.

I wanted to discuss all this with representatives of the nuclear fleet. However, in the office of Glavsudomekha chief engineer Anatoliy Belov, instead of a discussion, quite unexpectedly I essentially heard a stern lecture about how bad journalists "irresponsibly supercharge the situation" surrounding the peaceful atom at a time that is difficult for our country even without this. My attempt to lead the chief engineer out of denouncing yellow journalism and toward real facts ended in utter failure.

To make up for this, Anatoliy Pavlovich conscientiously informed me that in the Minmorflot system there once was a nuclear engineering department, later a nuclear fleet administration, which was subsequently transformed into something again. Not many have managed to survive in the process of intradepartmental tempests, and none of them have accurate information at their disposal about graveyards at the bottom of the sea. The chief engineer displayed especially touching concern about keeping the secret of the burial of radioactive remains from the nuclear ship "Lenin." He declared the question of their whereabouts a provocation. And refused further discussion...

All the same, it seems, Anatoliy Pavlovich was deceitful. We managed to find documents (incidentally, recently compiled) in USSR Minmorflot which clearly stated that the Kara Sea, precisely the Tcheniye, Tsivolka, Abrosimov, Stepoviy, Oga, Blagopoluchiye, and Sedov bays and the region of the Novaya Zemlya depression, was used rather intensively for the burial of hard radioactive wastes. Liquid radioactive wastes were poured into the Barents

Sea at points with coordinates from 74 to 78 degrees North latitude and from 48 to 52 degrees East longitude.

For the time being there is no information about radioactive dumps at the bottom of the other two northern seas. It is possible that many unexpected surprises also await us here.

Finally, official mention about the nuclear heart of the "Lenin" was found. As it turned out, according to the USSR Council of Ministers special secret resolution No. 148-62 of 18 February 1967, a unit of the ice-breaker's first nuclear assembly, consisting of three reactors without nuclear fuel with the pipes of the first loop and the removal shield of one reactor with a 60-percent complement of spent nuclear fuel based on uranium dioxide, was sunk in Tsivolka Bay. All this was preserved beforehand, and at that time those who carried out the action guaranteed storage safety for at least 500 years. However, as it in fact happens, it seems, nobody knows. I suspect, the nuclear assembly is lying at the bottom of the sea without any surveillance at all.

Meanwhile, the Kara Sea still stores, one should think, many mysteries of this type. After all, besides the civil fleet, the Naval Forces also discarded their wastes on its bottom. True, ships from the Murmansk steamship line were used for this, but information about the composition and activeness of such loads is not available there. They sank military containers, and God alone knows what is in them...

"Liquid radioactive wastes were collected in tankers under the flag of the auxiliary fleet," recalls a retired senior officer of the nuclear submarine fleet. "They added water and transported the wastes to certain places. There they 'sent it under the screw'—they poured it into the sea. Both military and civilian sailors buried hard wastes on the bottom. The main problem lies elsewhere: Whereas everything with the reactors of the ice-breaker "Lenin" is more or less clear, to this day it is uncertain what they did with the damaged compartments from our submarines. After nuclear assemblies broke down, they were cut from the hull, new ones were installed, and the old ones vanished without a trace.

For instance, what became of such a compartment from submarine K-19, known among sailors as the "Hiroshima?" This was the first reactor accident in the history of our nuclear submarine fleet. A core melt-down occurred on K-19 in the Barents Sea by the western end of the Norwegian peninsula near Jan Mayen Island. Tragedy was the result. The submarine was conveyed to a base on the Kola Peninsula and repaired. With a new compartment it still functioned. But where is the old one? And this is far from the only case...

So how much radioactive waste is lying just on the bottom of the fairly shallow Kara Sea, which abounds with islands? No precise answer to this question exists today. Thus, it is impossible to determine what such a graveyard threatens us with, to what ecological catastrophe it may lead.

Salvage of Nuclear Submarines Continues Despite Ban

*PM2401141192 Moscow KRASNAYA ZVEZDA
in Russian 23 Jan 92 Single Edition p 3*

[Report by Captain Second Rank V. Gundarov: "Murmansk People Not Against 'Disarmament.' They Are Against Nuclear Submarines Being 'Disarmed' Under Their Windows"]

[Text] Murmansk—The Leninskiy Rayon residential area in the city of Murmansk climbs the incline of a hill to the gates of the Navy ship repair plant at which the written-off submarines of the Northern Fleet undergo salvaging. The salvaging of nuclear submarines involves "demolishing" the cover of the reactor, unloading the nuclear fuel and equipment, and stripping the reactor vessel.

Until recently the Murmansk people believed that they were living outside the radiation danger limit. Last year their confidence was shattered. And the public has got Yevgeniy Komarov, chief of the Murmansk Oblast Administration, to suspend work on unloading nuclear fuel as of 5 January 1992.

By the start of the year the plant had managed to "defuse" just three submarines of the more than 30 which, according to Rear Admiral Yevgeniy Rogachev, chief of the Northern Fleet technical directorate, will be waiting in line at the plant's dock by 1995.

The "moratorium" announced by the oblast administration will last through 5 May. During this period Ye. Komarov believes, the Northern Fleet command should increase the safety of the unloading of nuclear fuel.

Specialists think otherwise.

"It is precisely for safety reasons that the fleet does not have the right to modify the technological process developed by the scientific research institutes," Vasily Miroshnichenko, the plant's chief engineer, voiced his opinion.

The plant's production plans have not yet been violated. Work on salvaging the Northern Fleet ships is continuing. The latest, fourth, nuclear submarine has now reached the plant.

It is notable that 30 years ago the construction of nuclear submarines developed according to a government program, with major capital investments. But now the fleet is salvaging the submarines itself, but without financial backup or the relevant technical base.

Mining Industry Waste of Mineral Resources Criticized

*92WN0244B Moscow NEZAVISIMAYA GAZETA
in Russian 10 Jan 92 p 6*

[Article by Georgiy Lezgintsev, doctor of technical sciences: "Billions of Rubles Wasted. We Are Not Rich Enough To Store Mineral Resources in Slag-Heaps"]

[Text] In debating the shortcomings of industrial civilization, we make plans of how to enliven the "lunar landscapes" around pit mines and shafts, without realizing that these man-made mountains are sometimes truly golden!

It is a question of mining industry wastes, the slag-heaps of barren rock and the "tailings" from concentration plants, of man-made resources, of great reserves for strengthening the raw-material base, which only at first glance appear entirely useless and, moreover, ecologically harmful.

Today "industrial desertification," the irrevocable loss of soils buried under industrial wastes, has already affected 20 million hectares of land. In this regard, the annual increase in the amount of hard wastes is about 8 billion tons.

In connection with the exhaustion of high-quality ore reserves and with the need to involve large amounts of hard-to-concentrate ores in production, the rate of accumulation of wastes has grown sharply in recent years, particularly in the mining and metallurgical industries.

Besides the tremendous ecological damage related to the effect of various wastes on the surrounding environment, the limitations of the technologies for processing the primary raw mineral resources turn into irrevocable economic losses. According to data of the state mining inspectorate, up to 26 percent of the iron, 27 percent of the manganese, 24 percent of the lead, 25.7 percent of the zinc, 30 percent of the tungsten, and 36 percent of the tin goes into the tailings heaps just in the stage of concentrating mined ores. The cost of the useful components being lost is 10-12 billion rubles annually.

A specially conducted ecological and economic analysis based on the example of the mining and metallurgical combines of non-ferrous metallurgy showed that if we take the damage to the surrounding environment from all wastes and expenditures related to the storage of hard wastes for 100 percent, then 30-40 percent of it could be eliminated with high ecological efficiency within the bounds of the profitability due to the additional output, obtained during their reprocessing.

In this regard, it should be taken into account that in the mining industry roughly half of the stockpiles, created at one or another deposit, is not used after the exhaustion of its reserves. This relates to all the already-developed and equipped mine workings and many surface installations, and therefore prolonging the length of existence of mines due to the reprocessing of man-made resources is extremely important. Everyone acknowledges the need for comprehensive extraction of metals from ores. Yet in reality, the faulty practice of one-sided use of highly valuable comprehensive ores has taken shape in nonferrous metallurgy. This barbaric attitude toward raw material appears from the moment of prospecting. Although prospecting organizations are called upon to report all valuable components contained in the ores, departmental geological prospecting organizations, as a rule, are interested predominantly in the mineral resource, the prospecting of which their department conducts. No matter

what ore it is dealing with, a geological prospecting organization for the copper or gold industry considers copper or gold the basic metal, and all the rest is incidental. For this departmental reason, ores are tested mainly for the "basic" metal, and secondary attention is devoted to the "incidentals," even though they may be of no less interest than the "basic" metal in terms of their value. For instance, in Kazakhstan one deposit was prospected as barytic, but was used for lead. It was proposed to mine tin at one deposit in Yakutia, yet it was later revealed that the ore contains other components, more valuable than tin. Often a necessary raw material, for the mining and processing of which up to 90 percent of all industrial outlays are sometimes made, is turned into production waste and lies in slag-heaps like useless rock.

Today the absence of economic and ecological regulating mechanisms, of equipment and technology for intensive reprocessing of the initial raw material, and the prevalence of departmental interests has led to the accumulation of more than 50 billion tons of industrial wastes, under the heaps of which lie more than 250,000 hectares of arable land, while another 700,000 hectares are covered with mine workings.

Perm Plant Develops Bacteria To 'Eat Up' Soil Pollutants

*PM2701122992 Moscow Teleradiokompaniya
Ostankino Television First Program Network
in Russian 1200 GMT 24 Jan 92*

[From the "Novosti" newscast: Report by M. Klepov and A. Kirillov, from Perm]

[Text] [Announcer] The problems which we have been experiencing of late include ecological problems. Here are a few figures. There are up to 700 disasters annually at the country's oil and gas enterprises. Many of these accidents could be avoided right now. This is a view held in Perm.

[Klepov] Scientists at the "Nedra" small enterprise have, for the first time in our country, developed a method of ridding soil and water of petroleum pollution.

According to specialists' estimates, vast territories in various parts of the country are literally saturated with chemical products down to a depth of 15 and more meters. It appears that these territories can be reclaimed. See for yourself. This is what contaminated land looks like. And on this plot fertility has been restored.

The process is based on a biological method. Special bacteria are grown, which "eat up" the noxious chemical substances. The main innovation is that the Urals scientists are growing the bacteria with consideration for climatic and other conditions prevailing in various regions. Hence the great effectiveness—up to 70 percent—of the cleansing process.

Siberian Forests Under Threat From 'New Joint Enterprises'

*LD0102093792 Moscow Radio Rossii Network
in Russian 1700 GMT 28 Jan 92*

[Text] In recent days the mass media have carried alarming reports that Siberia's precious forests are being destroyed by new joint enterprises set up by the local authorities and involving foreign capital. Our commentary is read by Stanislav Kalyagin:

More than 20 percent of the world's timber resources are concentrated in the east of Russia. These have now become the focus of attention of the transnational corporations. It is easy for them to find a common language with the local authorities who, since the collapse of the Union, have gained extensive control over the resources of this very rich area. The urgent need for convertible currency is the main factor in the creation of many joint enterprises which show no concern either for ecology or for the future of the people of Siberia. Under these conditions, intensive felling of the taiga has become the norm and measures to sustain the forests a rare exception. Regeneration of the taiga is further impeded by increasing soil erosion and the cold climate.

Ironically, the international ecological movement has itself to some extent created the threat which now hangs over Siberia. For many years it has waged a campaign to protect the tropical forests of South-East Asia and has obtained a reduction in felling in the North-Western United States. All of this has been a powerful factor in encouraging Western capital to create joint enterprises to exploit the Russian taiga.

The destruction of Siberia's forests is fraught with unpredictable consequences since the area is second only to the Amazon jungle in its capacity to convert carbon dioxide into oxygen, thereby saving the planet from the greenhouse effect. It would seem in this situation that the Russian government ought to pay more attention to the environmental protection movement in the republic to prevent our national natural wealth, the Siberian taiga, being squandered away.

Over 1,000 Yaks Said To Succumb To Cattle Plague in E. Siberia

*LD0102174992 Moscow TASS International Service
in Russian 1235 GMT 29 Jan 92*

[By TASS correspondent Vasiliy Danilenko]

[Excerpt] Kyzyl, (Tuva, Eastern Siberia) 29 Jan (TASS)—Over 1,000 yaks, or Asian musk-oxen, have died in western districts of the Republic of Tuva in the last two months. No precise diagnosis has yet been confirmed, but some specialists say it is large horned cattle plague. International experts are to reach a conclusion.

A delegation from the Russian Supreme Soviet Committee for Emergencies arrived in Kyzyl today to give emergency assistance, localize the epizootic center, and eliminate the

consequences of the infection. A group of civil defense servicemen and vets is working with the delegation. [passage omitted]

Vladivostok Institutes Water Conservation Restrictions

LD0202042992 Moscow TASS International Service in Russian 0350 GMT 30 Jan 92

[By ITAR-TASS correspondent Vladimir Palagutin]

[Excerpt] Vladivostok, 30 Jan (TASS)—A strict water conservation regime has been imposed in Vladivostok. Vladimir Yefremov, head of the city administration, today signed a decision on the right of city water services to establish contract prices for water for those enterprises which misuse drinking water for industrial needs. This step by the city authorities has been prompted by a sharp fall in water reserves. Of the three reservoirs, only one is actually operating. About 100 million cubic meters of water remain in it. This, experts forecast, is clearly insufficient for a city of more than 700,000.

"The cause of the present situation lies in the relatively dry summer and autumn, with precipitations amounting to 602 millimeters, almost half the previous year's level," says Nina Tkachenko, head of the production and technical department of the city water supply association. [passage omitted].

'Secret' of Toxic Chemical Dump Near Sverdlovsk Revealed

LD0402184592 Moscow Radio Rossii Network in Russian 1000 GMT 3 Feb 92

[Correspondent Yuriy Balandin report from Kurgan]

[Text] This marshy, wooded area on the border of Sverdlovsk and Kurgan Oblasts is surrounded by barbed wire and signs saying: Danger zone—keep out. Until recently it was kept a deep secret as far as local residents were concerned.

Journalists helped to uncover the secret of the danger zone. After a number of articles appeared in the press, the Kurgan Oblast ecology committee received an acknowledgement of its existence in a message from the Kamyshlov Rayon Committee of Sverdlovsk Oblast. It turns out that 123 tons of extremely toxic chemicals were buried in the woods, three km from the village of Nikolayevka, almost 20 years ago. The dangerous burial site was set up by soldiers from the former Urals Military District. To be fair, it should be noted that local authorities and the public health department were informed about the secret work which was being carried out.

The range was soon forgotten and the burial site remained unsupervised. The question of the dump had to be reopened recently due to the publicity which it had received. Servicemen from a special chemical battalion took readings of the radioactivity and checked steam being given off from the dump to see if it contained poisonous substances.

But they failed to do the most important thing: They did not organize a continuous monitoring of the groundwater. During the spring, when water levels are higher, water from the marsh discharges into small rivers nearby which flow into the Iset River, the main water artery. The local population is not being comprehensively checked for blood disorders, cancer, cirrhosis of the liver, and allergies, even though the general level of illness on a neighboring farm is almost 15 percent higher than in the rest of the district.

That is the secret of this clandestine burial site which was concealed from the local population for almost 20 years.

Russia Refuses Ukrainian Nuclear Waste

92UN0738A Moscow TRUD in Russian 4 Feb 92 p 2

[Article by Yu. Rogozhin: "Nuclear 'Barter': Why the Order To Refuse To Accept 'Nuclear Waste' Is Dangerous"]

[Text] The mass media recently reported that the authorities in Krasnoyarsk and Chelyabinsk had refused to accept for storage at facilities located on the territory of their oblasts radioactive waste from nuclear power stations in Ukraine. The main reason was that Ukraine is interrupting deliveries of food to the Siberians and the people in the Urals.

First of all it is necessary to clarify what kind of radioactive waste we are talking about. At Chelyabinsk and Krasnoyarsk they have banned acceptance of spent nuclear fuel from nuclear power stations in Ukraine; this material must be handled under the strictest preventive conditions.

After several years of "service" in a nuclear reactor a large proportion of the uranium-235 in the fuel is burned down, but as this occurs fragments of the separated nuclei are formed, and plutonium and other nuclides collect. All these products of the nuclear reactions are, of course, radioactive. Moreover, of all the materials present at a nuclear power station, spent nuclear fuel has the highest degree of radioactivity. But this is not the only danger. Since the fuel contains nuclides that are capable of the fission reaction, under certain conditions the possibility of a nuclear explosion is created. In general, spent nuclear fuel can be used in the production of nuclear weapons. This is why the nonproliferation treaty makes provision for a strict system of control over the use of nuclear materials, including spent nuclear fuel.

Particular caution is also needed in the handling of spent nuclear fuel because after nuclear fuel assemblies that have come to the end of their service life are removed from the reactor, processes involving the transformation of the products of the nuclear reaction continue and heat is given off. The spent fuel is therefore stored right there at the nuclear power station in so-called reactor pools, and is held there until the intensity of the heat being given off has declined by a factor of 10. It is only after this that the spent nuclear fuel may be placed in special storage facilities.

Where? For example, spent nuclear fuel from the VVER-440-type reactors located both on the territory of the former USSR and outside it used to be transported to the

well-known Mayak chemical combine near Chelyabinsk. Here, the "hot" and other useful isotopes were extracted from the spent fuel and the rest, now truly waste, was buried on the territory of the combine.

Spent nuclear fuel from the VVER-1000 reactors used to be taken to the mining-and-chemical near Krasnoyarsk.

I have not been using the past tense of the verbs just by chance. The new times threaten the collapse of the system now in place. It is quite probable that the authorities at Chelyabinsk may issue a strict product ultimatum not only to Ukraine but also to Hungary, demanding chickens. Or to Czechoslovakia—give us cocktail sausages. And where is the guarantee that the Siberians and Urals people will not demand similar barter deals with the Russian oblasts where nuclear power stations are located?

But someone should be thinking about the consequences, which may be catastrophic. For spent nuclear fuel cannot be processed and stored just anywhere. We have no money to build new combines like the Mayak combine. The refusal to accept spent nuclear fuel will lead to a situation in which the spent fuel will be stockpiled at the nuclear power stations. According to A. Rezinok, a leading expert with the Ministry of Atomic Power and Industry, after two or three years of this "tie-up" the available capacities in the pools will have filled, and then the nuclear power stations with VVER reactors will have to be shut down. Under these conditions there will be major energy shortages! It is hardly necessary to explain, is it, how this will affect the economy (and not only the economy) of those same Krasnoyarsk and Chelyabinsk Oblasts? In two or three years they will remember these lines.

Problems with spent nuclear fuel and its use and storage will, of course, remain even if the nuclear power stations are shut down. Is it really necessary to complicate them even more by replacing the public interest with considerations of a local or narrow departmental nature?

Ukrainian Ecology Minister Urges Aid for Dnieper Basin

92WN0165A Kiev *SILSKI VISTI* in Ukrainian
21 Nov 91 p 1

[“Appeal of the Collegium of the Ukrainian Ministry of Environmental Protection to the Ukrainian Supreme Soviet and the Ukrainian Cabinet of Ministers Concerning Urgent Measures To Improve the Ecological Situation in the Dnieper Basin: The Dnieper Is in Trouble”]

[Text] Concerned by the fate of the Dnieper, the collegium of the Ukrainian Ministry of Environmental Protection, with the participation of M.I. Zaludyak, chairman of the Ukrainian Supreme Soviet Commission on Questions of Ecology and Rational Use of the Environment and representatives of ministries, agencies, the association “Green World,” the Ukrainian World Council, and the Committee to Aid the Dnieper, has examined the ecological situation in the river’s basin and notes that:

The Dnieper, the main water artery of Ukraine, whose waters are used by more than 30 million people, is in trouble.

For many years departmental-monopolistic arbitrariness, extensive water use, and low ecological awareness have damaged the Great River. Neglect of ecological basics have led to overpopulation of the basin with industrial giants with imperfect technologies and equipment.

In drought years up to 90 percent of the river’s flow is already taken from the Dnieper basin on the territory of Ukraine. By the year 2000 close to another 3 billion cubic meters of the Dnieper’s waters will be used on the territory of the RSFSR and Belarus.

Each year more than 12 billion cubic meters of sewage, the majority of it contaminated, is discharged into the basin of the river from the territory of Ukraine alone.

As a consequence of man’s influence the sources of this drinking-water supply, including a part of the underground sources, have to a significant degree been contaminated by nitrogen compounds, petroleum products, heavy metal salts, pesticides, and other harmful substances.

The Dnieper has suffered great harm from the contamination of a significant portion of its basin by radioactive particles as a result of the disaster at the Chernobyl AES [nuclear electric power plant]. A “strontium spill” located on the left bank of the Pripyat river is a threat to the Dnieper and may be washed downstream when waters reach high levels.

Excessive development in the Dnieper watershed of phytoplankton and the neutralization of products of its decay in drinking water through increased levels of chlorine create a serious threat to human health.

The tendency toward a worsening of the quality of the drinking water has already given rise to social tension in the cities of Sevastopol, Nikopol, Kherson, and a number of others.

More than 1,200 km of the Dnieper’s banks are eroding, as a result of which almost 8,000 hectares of land have been lost.

At the same time, only 10 million rubles are being allotted annually for work toward ecological improvement, renewal, and maintenance of the rivers of the basin in proper condition and toward securing the banks, or 10-15 percent of the fee introduced in the republic for water use in industry.

The Dnieper basin water management association, which operates within the system of Ukrainian State Committee for Water Management at the expense of the state budget, is poorly provided with equipment and for the present is practically unable to ensure effective management of water resources and their protection.

As the experience of foreign countries shows, significant advances in the economical use of water and improvement of its quality and in the water management situation as a whole is only possible under conditions of for-pay use of

water and the presence of state structures which are responsible for solving the problems of river basins ("manager of the river").

Bearing in mind that numerous governmental decrees and rulings regarding preservation of the hydrological regime and sanitary state of the Dnieper basin have not yielded any apparent results, and recognizing its own responsibility for preservation of the Dnieper so that the population of independent Ukraine may be provided with drinking water, the Ukrainian Ministry of Environmental Protection requests that L.M. Kravchuk, chairman of the Ukrainian Supreme Soviet, and V.P. Fokin, prime minister, create a special governmental commission from representatives of the Cabinet of Ministers, ministries and agencies of Ukraine, scientific organizations, appropriate oblast soviet executive committees, and public organizations of Ukraine and commission it to draft a National Program for Rescuing the Dnieper and ensuring the population good-quality drinking water and to coordinate its execution with the RSFSR and Belarus.

French Firm 'Likely' To Build Casing for Chernobyl Reactor

*LD0102233992 Moscow TASS in English 1102 GMT
28 Jan 92*

[By UKRINFORM correspondent Dmitry Kiyansky—TASS]

[Text] Kiev, January 28 (TASS)—French specialists are likely to win the right to build a new "sarcophagus" for reactor no. 4 of the Chernobyl nuclear power plant destroyed in the world's most disastrous nuclear inferno in 1986.

The project, developed by the French firm Bouygues, attracted the Ukrainian Government by its relatively low cost and technical advantages. The firm said it will need a year to finish the project and another two years to carry it out, Mikhail Umanets, President of the concern Ukratomenergoprom, said.

The firm has already built 39 blocks for nuclear power plants and is now finishing the construction of the tunnel between Britain and France under the English Channel.

French specialists recently visited Ukraine and met with Ukrainian Prime Minister Konstantin Masik. The project will be carried out jointly by both French and Ukrainian specialists and builders. The Republican Academy of Sciences has decided to set up a special centre to coordinate their activities.

French specialists said the present casing of the reactor, built immediately after the explosion, will prevent radiation leaking for at least 30 years. The decision to build a new one was prompted by the need to exclude such leaks in the future.

The new "sarcophagus" will have a 100-year warranty and will be able to withstand earthquakes, floods and shocks. It will also have research stations on the roof and air-tight sluices allowing special teams to continue clean-up work inside.

First Issue of New Magazine on Chernobyl Published

*LD0502114392 Moscow TASS in English 1252 GMT
4 Feb 92*

[By UKRINFORM correspondent Adam Yanushevsky]

[Text] Zhitomir, February 4 (TASS)—A local publishing office printed the first issue of the HOSTAGES OF CHERNOBYL magazine, published both in English and Russian. The purpose of the new periodical is to draw wide attention of international charity funds to the ongoing cleanup of the Chernobyl accident.

The first issue runs a story about the newborn Zhitomir charity fund for people being evacuated from the regions polluted by nuclides. Significant amounts of money have already been donated by Japanese, Czechoslovak and Polish funds. Another source of hard currency would be revenues from the magazine's sales abroad.

Estonia Signs Environment Pact With Finland

*92WN0144B Helsinki HELSINGIN SANOMAT
in Finnish 8 Nov 91 p 1*

[Unattributed report: "Finland and Estonia Sign Pact of Environmental Protection"]

[Text] Sulfur-removing apparatus is to be installed at Narva power plant.

Minister of Environment Sirpa Pietikainen of the Conservative Party and the Estonian Minister of the Environment Tonis Kaasik signed a pact of environmental protection on behalf of their governments Thursday in Helsinki. This treaty is the first between Finland and an independent Estonia.

The goal of the pact is the improvement of the state of the environment in both countries by increasing the efficiency of air and water quality protection and waste treatment. The collaboration also extends to the protection of plant and animal species and their habitat. The pact especially emphasizes the conservation of the Gulf of Finland.

In practice the cooperation will be implemented by a permanent, joint Finnish-Estonian executive committee. This will decide on what, where, how and who the collaboration will involve. The chairpersons of the committee will be the environmental ministers.

"The treaty is an effort to continue the already over 20 years of environmental cooperation between Finland and Estonia," said Pietikainen after signing the pact.

The treaty stresses direct communications.

This treaty with Estonia is essentially like the 1985 treaty between Finland and the USSR. One difference is that this stresses direct communication between officials.

Other objectives of this collaboration include more efficient monitoring of the state of the environment, the exchange of information on the environment and also the transferring of technology pertaining to the field.

Another pact that was signed on Thursday was the cooperation agreement for the environmental information centers of Finland and Estonia, according to which Finland's [text missing].

[Text missing] "the sulfur and dust emissions of power plants that use it," said Kaasik.

On Friday the environmental ministers signed an agreement on making the sulfur removal more efficient at the Baltic Generating Station near Narva. Finland will spend 16 million markkaa for the remodeling at Narva. The project is the biggest state-supported environmental investment in Estonia to date.

One of the boilers at the generating station will have Finnish sulfur-removal apparatus installed.

The Baltic Generating Station uses [text missing].

[Text missing] information center is committing itself to, among other things, the exporting of both know-how and environmental informational technology to Estonia and to financing in part the operation of the Estonian environmental information center for the compilation of all environmental data in the Baltic region.

Minister of Environment Kaasik feels that the worst environmental problem in Estonia is caused by the concentration of the chemical industry, energy production and mining activity into one small area. The condition of the Baltic Sea also causes concern for Kaasik. The open pit quarrying of oil shale creates problems, and so does [text missing].

[Text missing] Estonian oil shale as their energy source. With the new sulfur removal apparatus the enormous sulfur and dust emissions of the power plant will decrease. 75 percent of all of Estonia's sulfur emissions come from two big generating stations near Narva. 200,000 metric tons of sulfur dioxide is released into the atmosphere yearly. Particle emissions are equally large.

Due to prevailing winds a big part of these emissions come to Finland. In part of southern Finland the Narva region power plants account for 10-20 percent of all sulfur in the atmosphere.

Minister of Environment Pietikainen said at the signing she hopes that environmental impact estimation methods will improve and be used if Estonia increases its quarrying and use of oil shale. The pressure on Estonia to use oil shale is great due to the shortage of foreign currency. The Estonian minister of energy, among others, Thursday negotiated with Neste about gasoline sales. Neste has been ready for an exchange deal: Estonians get gasoline and Finns get oil shale for refining.

Lithuania's Ignalina Power Station Reactor To Be Overhauled

LD2701122592 Vilnius Radio Vilnius in English
2200 GMT 23 Jan 92

[Text] Power Engineering Minister Leonas Asmantas has announced that the overhaul of the first reactor at the

Ignalina nuclear power station is to start on 29 January. As a result, the power supply will be limited.

The Ignalina nuclear power station generates more than a half of Lithuania's power. At present it is operating on the so-called [word indistinct] regime which does not change either by day or by night. It generates a sufficient quantity of power to satisfy demand.

Nuclear fuel is, as before, purchased from Russia. However, after the latter increased prices tenfold, Lithuania approached several foreign companies with a view to purchasing fuel.

The weekly GIMTASIS KRASTAS has published statements by several experts. According to them, the environs of the Ignalina nuclear power station are less polluted with radioactive substances than other power stations of the former Soviet Union. Experts note, however, that there is damage to the ecological systems of the Druksiai lake, the water of which is used to cool the power stations's reactors, and to the surface. Some of the damage cannot be rectified even if the power station ceases operation. Power Engineering Minister Asmantas, however, said he does not think that ecological conditions will become worse because of the operation of the Ignalina station. Meanwhile it was announced today that the Swedish Nuclear Energy Agency is urging that the Ignalina nuclear power station be closed down, like that in Russia, in St. Petersburg. Before this is done, the Swedes are examining methods of improving the safety of power stations.

Details of Sabotage Attempt at Lithuania's Ignalina AES

PM0502162792 Moscow IZVESTIYA in Russian
4 Feb 92 Morning Edition p 8

[Nikolay Lashkevich report: "Criminal at the Ignalina AES"]

[Text] A technician at the Ignalina AES [nuclear electric power station] deliberately attempted to disrupt the operation of the nuclear reactor and thereby create a dangerous situation, the Lithuanian Government's Press Office reported sensationally.

We were unable to obtain more specific information about the reasons why one of the workers from the Ignalina AES interfered with reactor operations. However, it has become known that the suspect, who has already been arrested on a warrant from the prosecutor, intended to commit sabotage by inserting a program virus into the electronic equipment. Fortunately, the program controlled not the nuclear part of the reactor but other, safer systems. Thanks to efforts by nuclear power industry specialists and others, the problems were immediately eliminated.

As if on purpose, a breakdown in the AES first reactor's cooling system occurred almost simultaneously at the station; this did not lead, as the republic's Ministry for the Power Industry claims, to contamination of the premises and the environment. The story that this accident was linked to the aforementioned incident is categorically denied by officials.

Criminal proceedings have been instituted, and investigators from the Prosecutor's Office and the police are conducting an investigation into the case. The suspect's job was to service computers at the computer center. Various rumors are circulating in Snieckus, the nuclear power industry workers' city in northeast Lithuania. These range from simply settling scores with the suspect intruder, to a desire on his part to obtain a substantial financial reward in exchange for eliminating the problem he himself had created.

At the present time the reactors are operating normally. A group of Swedish experts, who have an interest in the nuclear safety of the Baltic region, will also participate in work to ensure that the Ignalina AES remains safe in future. They have already visited the station and submitted a whole series of proposals.

Impact of Restarting Armenia's Nairit Chemical Facility Viewed

92WN0243A Yerevan RESPUBLIKA ARMENIYA
in Russian 24 Dec 91 p 2

[Interview with Professor G. Martirosyan, general director for scientific work, and R. Simonyan, chief engineer of the Nairit Chemical Plant, by Correspondent Evelina Melkumyan: "How Are You Doing, Nairit?"]

[Text] *It would seem that everything that could be said about Nairit has already been said. Whereas one segment of society considers Nairit a "Chernobyl-style time bomb," another, on the contrary, is inclined to see it as the "savior of the nation" and the only means of solving the urgent problems facing our republic. Long and heated debates have nonetheless erupted over the government's decision to keep Nairit in operation until 1995...*

Two months—May and June—were allotted for reviving this giant, which includes its own All-Union Polymer Scientific Research Institute with its own experimental production line, and its own chemical plant, where a number of products are being produced on a large scale. In order to set this complex facility in motion again after one-and-a-half years standing idle it was necessary to do a colossal amount of work both in terms of production and environmental protection. It speaks highly of its collective that it managed to keep such a tight schedule, and on 5 July the first signs of life reappeared. The first production lines put back in operation manufactured lime and carbon dioxide, then came chlorine and caustic soda production. Thus the whole association gradually "came back to life" one section at a time.

Along with Nairit hundreds of production facilities in Armenia itself and in various other republics also got back in production after being idled by shortages of essential products: chloroprene rubbers and latexes, acetylene, carbonic acid, carboxylic acids, unslaked lime and many others.

Nairit is back in operation. And once again the problems of ecology, economics and all the rest are back on the

agenda. For a discussion of these problems our correspondent spoke with Professor G. Martirosyan, general director for scientific work, and R. Simonyan, chief engineer of the Nairit Chemical Plant.

Economics

[Correspondent] As you are aware, it was economic issues which proved decisive in finding a solution to this problem. What effect can be expected from restarting Nairit?

[Martirosyan] It is virtually impossible to give a specific answer to that question, since at the moment the price situation is completely unpredictable. Prior to the shutdown of Nairit a metric ton of rubber cost R2,000-R2,500 [rubles], but at the time we restarted production the price ranged from R6,800-R8,500 up to R27,500 per ton. At the present time, due to the rising cost of raw materials and energy, it is assumed that the price of one metric ton of rubber will reach a minimum of R40,000 in 1992. So you can see that it is very difficult to make any predictions under the current circumstances.

[Correspondent] Obviously you prefer to sell your rubber for hard currency, do you not?

[Martirosyan] Of course, particularly since our product meets world standards, and a metric ton of rubber costs \$2,500-\$3,000 on the world market. We are already doing preparatory work in that direction. And we will be selling our products to the former Union for hard currency, since it was acquiring 30,000 metric tons of rubber every year that way already.

[Correspondent] Incidentally, as former Prime Minister Ryzhkov has noted, the idling of Nairit caused huge damages to the Union economy totalling approximately R14 billion.

[Simonyan] If one considers the fact that when chloroprene rubber production was halted (and Nairit, as you are aware, has a monopoly in that area of production) both within the former Union and in the former CEMA member countries the price of chloroprene rubber on the world market rose immediately, then the extent of the damage caused is even greater. The USSR State Committee for Science and Technology has estimated the damage at R22 billion. As for our republic, the losses as calculated by the Armenian State Committee for Economics were around R2 billion.

[Correspondent] What kind of losses did the association itself suffer from the shutdown?

[Martirosyan] R70 million. The financial situation of our personnel who did not leave the association was also very precarious, because each person lost about R2,500 in pay. Yet despite that and despite negative public opinion the bulk of our workers did not scatter; that was the only reason that it was possible to be prepared to restart production in such a short period of time.

I would like to emphasize that in addition to the damage to the economy and morale, the association suffered greatly

in terms of science and production; therefore we are now making great efforts to reach the level achieved by the association in 1987.

It should not be forgotten that under the old system for over 50 years we were only concerned about actual rubber production, with all other problems being very effectively and neatly resolved by the Union ministry because our enterprise was unique and very important. Now we have to worry about everything ourselves and we are constantly running into difficulties getting both raw materials and equipment, which can be acquired only with large sums of hard currency, somewhere in the neighborhood of \$10-12 million, as well as difficulties in other areas. The most elementary matters are often problematic, say the lack of some component which a previously reliable partner now refuses to supply, and this shuts down the process of manufacturing our main product: chloroprene.

[Correspondent] So does that mean that you liked the command-administrative system and that the independence toward which your enterprise strove was all to naught?

[Martirosyan] A production facility like ours, with ties to over 2,000 partners in the former Union and over 300 here in our republic and operating in such a complicated political situation, cannot get along without a coordinating organ at this point. Since that "coordinator" no longer exists, the association's collective faces the task of establishing horizontal ties and finding reliable partners as soon as possible. But that will take a year or two.

[Correspondent] But are you presently able to freely utilize at least a portion of what you manufacture?

[Simonyan] Yes, the Armenian Government is taking the association's interests into consideration, leaving it 30 percent of the products it manufactures so that it can acquire equipment, raw materials and other components necessary for ensuring normal operations. In addition, by means of the barter transactions which are currently so popular the association can supply its personnel with consumer goods. However, under present conditions over the past six months we have managed to produce only 8,500 metric tons of rubber instead of the 20,000 tons we had planned.

[Martirosyan] That means that the enterprise is virtually not functioning. The current situation—the rail blockade, the unavailability of natural gas and the energy shortage—are causing serious harm to our association's operations. Every month we have to shut down production for 10-15 days. Our acetylene production facility is completely shut down due to the unavailability of natural gas. The limited amount of electricity available also forces us to curtail production, and that makes what we do produce more expensive. Nevertheless, even under such unstable operating conditions we have already fully compensated for the losses suffered during the shutdown. By year's end we will have made R5-6 million in profits. Under normal operating conditions that figure would be R50-60 million. Next year we expect R400 million in profits even with the association operating at only 80 percent of capacity.

[Correspondent] Yes, those are encouraging figures. Let us hope that our devastated economy can get back on its feet with such a substantial injection of capital.

[Martirosyan] Incidentally, I would like to note that the overall state of our republic's economy has had a very negative effect on our enterprise's operations. Formerly when the workers were getting minuscule wages they nevertheless worked conscientiously. Now our average monthly wage is R1,030, and next year will rise to R2,000-R3,000. But even a wage like that is no incentive for good work, because inflation is preventing it from creating a higher standard of living.

Ecology

Though the economic aspect of Nairit's operations is being called into question by hardly anyone, its ecological problems are much more complicated. Zhuzhanna Abramyan, laboratory head and candidate of chemical sciences, also took part in our discussion of that issue.

[Correspondent] Right now Nairit is working at one-third of capacity. Will we be able to see Mt. Ararat on the horizon when it is operating at full capacity?

[Martirosyan] Your concern is understandable, and I think that it is justified because working at partial capacity and with frequent down time greatly increases the degree of risk and creates unfavorable conditions for compliance with environmental standards. That is why, even though environmental problems were always a focus of attention by our scientists and engineering personnel, we are now paying even more attention to them.

Monitoring of gaseous emissions into the atmosphere as well as the content of our waste water has been tightened substantially. Our association has a fairly well-equipped sanitation laboratory. It measures our emissions several times daily and presents summaries of them to which we react immediately.

[Correspondent] But that is all "in-house" monitoring and thus is not likely to increase the public's confidence very much.

[Martirosyan] Outside monitoring has been tightened correspondingly, mainly by the republic Ministry of Health and the State Committee for Environmental Protection, and they are the ones who are supposed to set standards for maximum permissible discharges into the air and water. However, that issue has not yet been settled, something which greatly grieves us.

[Abramyan] In regard to gaseous emissions into the atmosphere and especially in regard to the discharge of chloroprene, which is of greatest concern to the public, I would like to note that our laboratory has now developed a filtration method which allows us to sharply reduce the amount of chloroprene released in our gaseous emissions.

[Martirosyan] Generally speaking we have a large program of studies underway on gaseous emissions, waste water and utilization of liquid and solid wastes.

Our institute possesses major intellectual potential and has come up with many interesting means of rendering waste products harmless. Among them I would like to note in particular a method developed under the direction of Professor A. Malkhanyan to utilize liquid and chloro-organic wastes produced as by-products in the manufacture of chloroprene, a method which I regard as one of our greatest achievements. Currently these wastes are being incinerated all over the world. The method we are proposing makes it possible to use them to obtain very valuable and hard-to-get products: paints and varnishes. This development is unparalleled anywhere in the world. The economic effect from introduction of which process, which we are doing everything we can to accelerate, will be tens of millions of rubles annually.

[Correspondent] It is a well-known fact that up until now Nairit has been discharging a large amount of salts together with mineral-bearing waste water into the Araks River. How long is that going to continue?

[Abramyan] The problem is that the water treatment equipment originally envisioned proved unsuitable. We have developed a very effective means of utilizing waste water for electrolysis, but in practice this method can only be used under normal, stable working conditions, when there is a steady flow of waste water. However, we cannot expect that to happen either immediately or in the near future, therefore we have had to develop an intermediate method involving cascade-method purification prior to electrolysis. We hope that we will be able to put that method to use within the next few months.

[Correspondent] Does that mean that implementation of many existing environmental protection systems is being held up by the objective reasons which are so popular nowadays?

[Martirosyan] Unfortunately that is true. But if people had not once yielded to emotion and shut Nairit down, then we would already be seeing much more significant progress in terms of ecology. Nevertheless it should be noted that even now we have solved one problem that is of great concern to the public, i.e. the problem of liquid chlorine transport. We have stopped using chlorine from other sources altogether, thus precluding the possibility of undesirable accidents. In order to achieve this we directed all our efforts toward starting up chlorine and caustic soda production. However, since during the shutdown all 120 of our electrolyzers became unusable, we had to make a tremendous effort to get them back in service. As of the present time we have restored approximately 115 electrolyzers to service, i.e. we can produce chlorine at 85 percent of capacity. We strictly comply with all safety requirements governing chlorine storage, using tanks containing no more than 100-160 metric tons of liquid chlorine. Furthermore, a few days from now we will start up a shop to treat waste water created during rubber production and to incinerate solid waste.

In conclusion I would like to note that our association is doing everything possible to ensure safety in its production

processes and that in the near future it will reduce to a minimum the negative environmental effect created by Nairit.

Azerbaijan Appeals for Help in Saving Natural Environment From 'War'

*NC0102093592 Baku Radio Baku Network in Azeri
2000 GMT 29 Jan 92*

[Text] The Azerbaijan State Committee for the Protection of the Natural Environment has appealed to all CIS [Commonwealth of Independent States] organizations concerned with environmental protection and to international organizations to help save the natural environment in Azerbaijan. The appeal said that the undeclared war waged by the Armenian separatists has significantly damaged Azerbaijan's historic land. The damage to our republic's natural environment is more than 2 million rubles. More than 500,000 trees have been felled, and 675 hectares of natural [word indistinct] and 75 hectares of forest have been destroyed to make way for the unauthorized construction of roads. Estimates put the damage in excess of 32 million rubles.

According to initial figures, 12,500 hectares of agricultural land have been occupied and many farming and grazing areas are not being used. This harms the natural environment and worsens Azerbaijan's rather complex economic situation.

The appeal concluded: On behalf of the people, the Azerbaijan State Committee for the Protection of the National Environment urges every world environmental and social organization and human rights group to help stop the destruction of Azerbaijan's natural environment, repair the damage, and recover what its people have lost.

Kazakhstan To Assess Ecological Effects From Military-Industrial Complex

*92WN0244C Moscow NEZAVISIMAYA GAZETA
in Russian 9 Nov 92 p 6*

[Article by Vladimir Yakimets: "What Does Activity of the VPK Cost?"]

[Text] "Radiation, Ecology, Health"—this is the name given to an independent problem committee, formed in Alma-Ata on the initiative of the "Nevada-Semipalatinsk" international anti-nuclear movement. It includes scientists and specialists from Kazakhstan, who are studying the problems of radiation and general ecology, biology, and medicine.

For a long time, information concerning the projects of the military-industrial complex [VPK] and their influence on the ecology of Kazakhstan remained inaccessible to society. This hindered the taking of the necessary precautionary steps with regard to the population, living in ecologically unfavorable regions.

The "Revival of the Earth and Man" Program, which calls for a comprehensive approach to rehabilitating land that has suffered from the activity of the VPK, was adopted.

The "Radiation, Ecology, Health" problem committee is faced with assessing the condition of the biosphere in areas where VPK projects are located and compiling radiobiological and geochemical maps, having singled out local sectors in terms of their degree of degradation. According to the research results, a forecast of expected ecological situations will be made and measures to prevent them will be developed.

Kazakhstan Parliament Declares Aral Sea Region 'Ecological Disaster Zone'

*LD0402174892 Moscow Programma Radio Odin
Network in Russian 1600 GMT 4 Feb 92*

[Text] The parliament of Kazakhstan has adopted a resolution which will make it possible to improve living conditions in the Aral basin area in Kazakhstan. The document, sent to the mass media today for publication, says that the situation in the region has reached a state of crisis due to the continuing drying up of the Aral Sea. The equilibrium of the natural environment has been upset and the health and living conditions of the population have deteriorated sharply.

To ensure the social protection of the people and to maintain and gradually restore the sea, it has been deemed expedient to declare an ecological disaster zone for all

rayons of Kzyl-Orda Oblast, the town of Kzyl-Orda, and a number of rayons of Aktyubinsk, Chimkent, and Dzhezkazgan Oblasts.

The Cabinet of Ministers has been instructed to grant local residents benefits and compensation. In conjunction with the republic's Academy of Sciences, it should table a bill for examination at the upcoming session of the Supreme Soviet on establishing legal ecological and economic requirements for commercial and other activities and the social protection of the population which is suffering from the ecological catastrophe in the Aral basin. The government has been asked to undertake other specific and effective measures to clear up the situation in the Aral basin.

Tajikistan Supreme Soviet Establishes Environmental Ministry

*PM0202031992 Dushanbe Radio Dushanbe Network
in Tajik 1100 GMT 29 Jan 92*

[Excerpt] In accordance with a decision of the Supreme Soviet of Tajikistan, a number of state committees and ministries have merged. One of the newly established ministries is the Ministry of Environment Protection. [passage omitted]

REGIONAL AFFAIRS

Siemens, Skoda Set Up Joint Venture in Energy Generation

92P60087A *Duesseldorf HANDELSBLATT in German*
27 Nov 91 p 26

[Text] The Siemens division of KWU has agreed in principle with the Skoda company of Plzen A.S. and Skoda Praha A.S. to establish a joint venture for the entire field of energy generation. Such an agreement was signed in Plzen, but it still requires the approval of the government of the Czech republic. The planned joint venture intends to offer fossil fuel and nuclear power plants, hydroelectric generators and also modern environmental protection technology for power plants and waste disposal facilities. Thus it will furnish a complete spectrum of products, from development and planning to the delivery of turnkey operations.

The working name for the new company is Skoda Energy. Skoda will take 33 percent of the capital and Siemens/KWU will take 67 percent. According to information from Munich, the share which Siemens will take will also provide for participation by the French reactor manufacturer Framatome, with whom Siemens/KWU has been cooperating in reactor construction since 1989.

From this cooperation, Skoda is hoping for assistance in the task of bringing the northern Bohemian power plants up to the necessary level of environmental technology and in other urgent environmental problems of the CSFR.

Siemens was chosen as the strategic partner for developing the energy business, it is said, because the company, along with Framatome, provides the best qualifications for power plant business on the world class level in the area of nuclear equipment. For Siemens, the cooperation with Skoda is a considerable increase of its involvement in energy technology, not only in Central and East Europe. With this "solid partner" one can tackle larger deals on the world market. During many years of business dealings, one has become convinced of the high technological level of Skoda and the qualifications of its employees, it is said. The predominant share of the management for the joint venture will come from Skoda. The installations and funds to be supplied, as well as the number of personnel, are to be regulated in the coming months. Skoda Plzen was founded in 1859 and is one of the world's most important manufacturers of power plants. The company has a leading position in East Europe in the construction of both conventional and nuclear power plants. Over 7000 persons are employed in Plzen and Prague in the area of energy production.

Former GDR, Swiss Firms Form Pollution Control Company

92WS0217E *Paris AFP SCIENCES in French*
28 Nov 91 p 57

[Article: "Jenoptik and Sandoz Form a Mixed Company"]

[Text] Iena—The former East German industrial optical giant Jenoptik GmbH and the Swiss chemicals group Sandoz created a mixed company specialized in pollution control 22 November.

According to the terms of the agreement that was signed between Jenoptik's director, Mr. Lothar Spath, and the vice president of the Swiss firm, Mr. Rolf Schweizer, Sandoz will hold 51 percent of the mixed company's capital and will manage it. The company will have registered capital of one million marks to start with and will initially employ one hundred people.

Sandoz is the first foreign partner of Jenoptik GmbH, which is the heir to the former industrial optical company Carl-Zeiss Jena, the technological flower of the ex-communist regime. Mr. Spath announced that two mixed companies would be created in the next few weeks, with another Swiss firm and a Dutch partner.

The mixed company Sandoz-Jenoptik is particularly interested in manufacturing equipment to combat pollution (an especially acute problem in East Germany, where environmental protection was virtually non-existent for 40 years) and to recycle garbage.

AUSTRIA

Environment Ministry Demands Information on CSFR Nuclear Waste Depot

AU0402133292 *Vienna DER STANDARD in German*
4 Feb 92 p 6

["los" report: "Nuclear Information Demanded From CSFR"]

[Text] Dukovany/Vienna—The Austrian Environment Ministry addressed a message to the CSFR on Monday [3 February] requesting that it supply all documents and information on the planned nuclear waste depot in Dukovany near the Austrian border. This was announced by the responsible official at the Environment Ministry, Heinz Schreiber.

The owners of the Czech nuclear power plant want to establish an intermediate depot for fuel rods in Dukovany when the existing depot becomes full in 1993.

The mayor of Dukovany, Jonas Vit, asked Austria to dispatch a team of experts who should be involved in the procedure.

The "ESPOO Treaty" concluded in February 1991 provides for control and advisory services by Austrian experts and recommendations by Austria. It also regulates the issuing of statements on the environmental compatibility of projects in the border region.

The Austrian Environment Ministry was informed by Czech authorities about the planned establishment of the intermediate depot in Dukovany. The message also mentioned a study that has been commissioned, but which is not yet available, Schreiber stated.

FRANCE

Radioactive Deposits in Limousin Declared Harmless

92WN0236A Paris LE FIGARO in French 11-12 Jan 92
p 8

[Article by Jean Paul Croize: "Nuclear Wastes: The Ecologists' False Alarm"]

[Text] According to them [the ecologists], 200,000 barrels stored in Limousin would contain radioactive substances.

Verifications having been carried out, the toxicity of those substances proved to be very limited.

There was turmoil yesterday in the Limousin region, where an environmental protection association, the Commission of Independent Information Research on Nuclear Materials (CRIIRAD), had announced that over 200,000 barrels containing, or having contained, radioactive materials had been stored since 1974 in former uranium mining sites of the region located in Bessines et Combragnac (Haute Vienne), north of Limoges.

The Inventory of the "Desgraupes Report"

It appears, however, that the importance of the "revelation" remains limited. As a matter of fact, COGEMA [General Nuclear Materials Company] officials—COGEMA is a subsidiary of the Atomic Energy Commission entrusted with the management of nuclear materials and their waste—recall that the not very contaminant materials stored in those sites had been inventoried and the findings made public last year by the "Desgraupes Report." This report was prepared upon the order of the three ministers concerned with the management of radioactive waste, namely, industry, health, and environment.

When one refers to the pages of this report pertaining to the sites which are the subject of the controversy, one notes that some 194,000 metal barrels are, in fact, stored in these mines. These barrels had contained either uranate of uranium or slightly enriched uranium-bearing waste originating from the Comurex plant in Pierrelate—where natural uranium is enriched with isotopes 235—as well as 9,500 tons of low activity waste from various sources, 16,800 tons of soil and rubbish, and 1,900 tons of scrap iron originating from the Bouchet site in the Parisian region. But the truly important factor is that the radioactivity of this waste is considered by scientists to be clearly less elevated than that—entirely natural—of the 25,000 or so tons of uranium ore which, on the contrary, have been removed from these sites since the beginning of their exploitation in 1958. Compacted and buried in mud and rubbish, today's stored waste "in no way represents a danger of contamination for the neighboring populations," asserts Anne Marie Chapuis, the head of the Department of Research for the Protection of the Geosphere and of the Elimination of Waste, a department of the Protection and Nuclear Safety Institute (IPSN).

No New Seveso

She explains: "It must be understood that these dumping sites contain only ore from which the uranium has been extracted, or empty barrels which, furthermore, only contained substances with very low per-unit-of-mass activity". The IPSN indicated that the uranate, that is to say, the uranium oxide that the barrels contained in powder form and of which only negligible residues can now remain, represents an average radiological activity on the order of 50 becquerels per second.

Emphasizing that this activity is comparable to that of an uranium mine of average grade, on the order of 1,000, Anne Marie Chapuis vouches that "in any case, the radioactivity of the waste stored in those mines is lower by approximately 25 percent than that of the ore itself before exploitation began."

She asserts: "We are therefore absolutely sure that even if an eccentric person were to decide to settle there, he would not die."

Having launched the controversy, the ecologists themselves admitted yesterday that "in no way does it represent a new Seveso," as Dr Martine Deguillaume, a CRIIRAD [Commission for Research and Independent Information on Radioactivity] official in Limousin, had publicly declared.

In fact, the controversy springs from the quarrel that for the past six months has pitted CRIIRAD members against public authorities to get them to change the classification of uranium mines now used as storing sites to "basic nuclear installations," which means, in administrative jargon, into zones subjected to the same safety regulations as those of very high activity waste storage sites, a measure "absolutely unjustified," according to Anne Marie Chapuis.

GERMANY

Environment Minister Outlines FRG Position for Rio-92 Summit

92GE0207A Frankfurt/Main FRANKFURTER
RUNDSCHAU in German 25 Jan 92 p 8

[Article by FRG Minister for Environment Klaus Toepfer: "Chance for New Partnership between North and South: Position for Rio Summit on Environment Outlined"]

[Text] The international community of nations has set itself an ambitious goal for 1992: At the UN Conference for Environment and Development (UNCED), which will take place in June at the level of the heads of state and heads of government, the signal switches are to be reset for the entire spectrum of environmental policy as well as for all areas of developmental policy that are significant in this context. The preparations for this conference are now entering their decisive phase. The progress that has been made thus far has not been terribly satisfactory. For this reason, the [German] Federal Government is sparing no effort to reach a breakthrough before the conference. The

chancellor's trip to Chile and Brazil, as well as my meetings in southeast Asia, and other upcoming bilateral contacts serve this end.

Global problems, such as the destruction of the ozone layer, the threatening climatic catastrophe, the deforestation of entire regions, and the pollution of the oceans require quick action. This is particularly clear in the face of the threatening climatic catastrophe. If no effective countermeasures are taken, in the assessment of all the leading experts, dramatic consequences will have to be reckoned with. If we do not change our ways, in the next 100 years, the increase in temperature will be as great as that since the last ice age, 18,000 years ago. Global warming would lead to a rise in sea level of 30 to 100 centimeters by the year 2100, and to a far greater rise in subsequent centuries.

Against this backdrop, on a worldwide level, we consider a stabilization of CO₂ emissions by the year 2000, followed by steps toward reducing them in the years 2005 and 2010, necessary. The climate convention must make binding commitments to these goals; mere declarations of intent will not suffice.

Whether we like it or not, the life-style of our western societies is being imitated in the other countries of this world. If the heavily populated developing countries were to behave in the same way as the countries of Central and East Europe, the result would be, thanks to the emissions that are associated with such behavior, catastrophic. These countries have a right to economic development, however. This development will be compatible with the global environmental situation only if we in the industrialized countries reduce our share of greenhouse emissions, while at the same time providing a model for environmentally sound management. For this reason, the Federal Government has set as its goal a reduction of 25 to 30 percent in CO₂ emissions by the year 2005 (the base year is 1987).

We cannot expect the developing countries to provide, at no cost, the areas of ecological counterbalance to offset the overutilization of the world, for which the industrialized world is responsible. It is necessary, through fair access to modern technological developments, as well as by means of comprehensive economic cooperation, to create enough leeway for development, without endangering the environment any further.

The UN conference in Rio must mark the beginning of such an intensified partnership between north and south. That much having been said, we are well aware of the fact that the dimensions of the global environmental problems require unusual models for their solution. They must achieve three things at once:

- The distribution of technologies that spare the environment must be accelerated;
- Better underlying conditions must be created (fighting poverty and the population explosion, improving governmental and administrative structures);
- These measures must be financially manageable.

Thus, for example, the industrialized countries could commit their economies to measures that would reduce CO₂ emissions, while at the same time leaving it up to the economy, to a certain degree, where and how it can best reduce CO₂ pollution worldwide. Such compensatory possibilities would simultaneously promote the transfer of modern environmental technologies to the developing countries and the countries of Central and East Europe in a low-cost manner. This model, which I presented in December at the conference of ministers of the environment and foreign aid to developing countries in Paris, is now the subject of the deliberations concerning the world climate convention.

The Federal Government is in agreement with the other EC member states, that mechanisms of this type should be applied to other subject areas by the UNCED.

The goals the Federal Government has for UNCED are the following:

Besides signing the World Climate Convention and the Convention for the Protection of Biological Diversity, a global agreement on the management, preservation, and development of the forests in all climate zones should be promulgated at the UN conference.

In the view of the Federal Government, this "global consensus" must contain concrete elements and principles that are as all-inclusive as possible, as well as a commitment that immediately following the conference, international governmental deliberations will be taken up with the goal of achieving a conference on forests, whose provisions would be binding under international law.

Together with the aforementioned conventions and agreements, the plan of action that is to be promulgated by the conference, "Agenda 21," will set down the high priority goals and tasks, as well as the strategic concepts and the concepts in terms of practical measures that must be taken.

The following must stand in the foreground:

- Combating poverty and keeping population growth within limits;
- Developing national potential in terms of knowledge and practical understanding;
- Creating the appropriate legal and institutional underlying conditions at the national level;
- Including the costs of environmental impact in market prices as well as the universal use of economic instruments to as wide an extent as possible to promote the integration of environmental requirements into the remaining policy areas.

The declaration on the rights and duties of the countries with regard to the environment and development, the so-called "Earth Charter," which must also be promulgated by the conference, should also contain principles on the relationship between the state and the citizen, for example, the obligation to include the public at large in the decisionmaking process in the authorization of projects that would have a significant impact on the environment.

In addition, the significance of the principle of precaution, the principle of the causer, and the principle of cooperation should be stressed as the basis of national and international environmental policy.

The Federal Government also included an initiative on the awareness of environmental crimes. Severe damage to the environment that is caused with malice aforethought, which can have a long-term impact on the natural basis for life, must be prevented by all political and legal means available. The environment may not be abused, either as a weapon, or as a hostage. That applies equally to times of peace and times of war.

The conference must also reach decisions as to ways in which the international environmental policies of the United Nations can be improved. We deem it necessary to strengthen those UN organizations that are affected, particularly the environmental program of the United Nations (UNEP), and to improve the coordination within the United Nations insofar as the areas of environment and development are concerned.

It will be decisive for the success of UNCED that an agreement be reached between the industrialized countries and the developing countries. The necessity of making new and additional funding available to combat worldwide environmental problems and for developmental purposes is recognized in principle by most of the industrialized countries. Within the context of the EC and the OECD, we shall do our utmost to assure that realistic positions are developed in this regard, positions that render unity with the developing countries possible.

In recent years it has become clear that hard negotiating has made decisive progress in international environmental policy possible. This was shown to be the case in particular in the Montreal Protocol—the treaty to protect the ozone layer—which, by including large developing countries, such as India and China, and by making the necessary funding available, made possible the requisite rapid reaction in this area.

The Federal Government will do everything in its power to assure that comparable successes are achieved at the UN conference in Rio.

Reports Allege Former GDR Troop Exposure to Radiation

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[Text] Bonn (DPA)—The Federal Defense Ministry has reacted cautiously to press reports which state that the GDR National People's Army (NVA) exposed its soldiers to radiation from nuclear material during training. A spokesman for the Ministry confirmed in Bonn today that the NVA had also trained with radioactive substances at the Storkow (Brandenburg) troop training grounds. However, hitherto, it had not been known to what extent the health of the soldiers had then been affected by direct radiation.

The Berlin newspaper 'B.Z am SONNTAG' (Sunday paper) reports in its most recent edition, citing a report by the Defense Ministry, that NVA soldiers were trained to use radiation measuring equipment while being exposed to fields of radiation. First, sources of radiation were released from protective containers. The majority of these exercises took place in Storkow.

According to the Hardhoehe (Defense Ministry), a military research center was situated near to the training ground which was also used by civilian bodies in the former GDR for scientific research with smaller amounts of radioactive material. The majority of nuclear material used was from medical sources. The Bundeswehr, which took control of the training ground after unification, has now taken control of the safe storage of this material.

The 'B.Z am SONNTAG' reports that the Bundeswehr has taken over more than 800,000 sources of radiation from NVA stocks—among them plutonium suitable for the production of bombs. The GDR People's Army used 300 "highly radioactive" sources of radiation in its exercises. In addition to the NVA legacy, the Bundeswehr also has to deal with nuclear material which belonged to the former Ministry for State Security and the Institute for Applied Animal Hygiene.

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