JPRS-TEN-91-009
31 MAY 1991

Foreign Broadcast Information Service 50 ANNIVERSARY 1941 - 1991

JPRS Report

Environmental Issues

Environmental Issues

JPRS-TEN-91-009 *31 May 1991*

CONTENTS

WEST EUROPE

REGIONAL AFFAIRS

BELGIUM

FRANCE

GERMANY

ITALY

SWITZERLAND

UNITED KINGDOM

IAEA 21-24 May Vienna Conference on Chernobyl Disaster

AU2604111191 Paris AFP in English 1008 GMT 26 Apr 91

[Text] Vienna, April 26 (AFP) — The International Atomic Energy Agency (IAEA) will examine the results of a year-long international study on the Chernobyl nuclear disaster from May 21 to 24 at its Vienna headquarters, it said Friday.

The announcement, five years to the day after the accident on April 26, 1986, said the study concentrated on the environmental and health risks of the accident. It also evaluated protective measures that have been taken against the radiation contamination.

The project was requested by Moscow in 1990 to study the effects on the three republics worst hit by the radiation, the Ukraine, Belorussia and the Russian Federation.

Some 200 independent experts from 22 countries and seven international organizations took part in the project, which includes 40 missions to the Soviet Union.

Though the results of the 1,000-page report have not yet been disclosed, an Austrian expert involved, Friedrich Steinhaeusler, said recently there was little hope that it would prove any increase in cancer in the high-risk zones but that residents in these areas remain extremely worried.

Argentina, Germany Announce Plans for Joint Antarctic Laboratory

PY2104231891 Buenos Aires BUENOS AIRES HERALD in English 20 Apr 91 p 6

[By Roberto Herrscher]

[Text] The Argentine Antarctic Institute (IAA) and the German Embassy in Buenos Aires announced recently a plan for the construction and installation of a laboratory in Antarctica. It is an important step in the road to search and exploration in the white continent in the framework of long standing bilateral cooperation in joint research programmes between Argentina and Germany, which already include the fields of telecommunications, space activities, renewable energies and nuclear research.

The directors of the Direccion Nacional del Antartico [National Directorate for the Antarctic] retired General Jorge Leal and the Alfred Wegener Institut fur Polar und Meeresforshung (AWI) Gotthilf Hempel signed an agreement for the construction of a laboratory annexed to the Argentine scientific station Jubany at the South Shetland Islands, which will be committed to develop research programmes on biology and geosciences in cooperation between the two countries.

Carlos Rinaldi, head of IAA and the Argentine responsible in the process of construction and installation of the laboratory, told the Herald that Germany will provide 470,000 dollars and scientific advice on the construction of the laboratory in Buenos Aires, but that the building itself will be constructed using Argentine technology and national engineers and architects will be in charge of transporting it to Antarctica and assembling it next to the polar base.

The Argentine side will pay for the transport, lodgement and food at the Jubany base, as well as providing the workers for the construction, while AWI will provide two generators and one Unimog with a small front loader for the construction and assembling operation.

The size, design and infrastructure of the laboratory have been outlined in mutual negotiations, and, once assembled, it shall be used jointly with equal rights for scientific research by both Argentine and German scientists, as well as researchers from other countries who are willing to profit from the data collected by what is expected to become the most modern laboratory working in Antarctica.

The German Science and Technology Attache and IAA director Rinaldi addressed a small group of journalists on the characteristics of the laboratory and its research plans. They agreed that constructing it next to an existing base diminishes the environmental damage produced by all human activities in that delicate frozen continent and makes the whole scheme cheaper and safer.

The laboratory will cover 240 square metres comprising humid and dry biological labs, a special room for divers and enough space for 12 scientists.

Rinaldi pointed out that scientists from the Polish, Chinese, Korean, Chilean, Ecuadorean and Brazilian bases in the area are expected to exchange knowledge and experiences with the staff of Jubany.

The Alfred Wegener Institute modern icecracker RV Polarstern and the national ARA Almirante Irizar will take samples of the ice, algae and other vestiges of life in the area to their inland laboratories.

One of the main tasks of the laboratory will be to study global weather changes, their incidence and possible effects in Antarctica. Another topic of research will be the hole first detected in 1987 in the ozone layer in the stratosphere over Antarctica.

There will also be groups of biologists studying the behaviour and eating habits of seals, penguins and other animals, as well as a team extracting ice at different levels under the surface, because it is an excellent way of tracing the history of natural or human-produced changes in the atmosphere, such as volcano eruptions, industrial pollution or atomic experiments, through the particles which get stuck in the successive layers of ice.

The idea behind this plan is that knowledge can lead to awareness and the choice of the proper actions: In order to protect and preserve the largest unpolluted and virgin

land on Earth, scientists, politicians and managers need to know the richness, weak spots and problems of Antarctica.

Leningrad Symposium on World Ocean Pollution Opens

LD1504202791 Moscow TASS in English 1810 GMT 15 Apr 91

[By TASS correspondent Nikolay Krupenik]

[Text] Leningrad April 15 TASS—Urbanisation has an adverse effect on the condition of the sea shelf: Pollution spreads over to the entire world ocean. What should be done to avert this ecological threat will be discussed by experts from major scientific centres of 14 European countries, America and Australia at an international symposium that opened here today.

The symposium on the subject: "The Global Monitoring of the World Ocean" was organised by the Soviet State Committee for Hydrometeorology and the USSR Academy of Sciences with the participation of experts from the United Nations, UNESCO, the World Meteorological Organisation and the International Atomic Energy Agency.

"The natural processes taking place in the world ocean require permanent monitoring of a vast territory," UNESCO expert, Professor George Gray (Norway) emphasised at the opening of the symposium.

"It is only through international cooperation and close coordination of the scientific potentials of many countries it is possible to concentrate the necessary number of research vessels and special equipment in one area of the ocean and arrange exchanges of aerospace data," Professor Gray said.

Participants of the symposium will also consider the impact of the ocean on climatic changes and the formation of weather.

Ecological Stress Spells 'Slow Death' for Baltic Sea

LD2004012491 Moscow TASS in English 1241 GMT 19 Apr 91

[By TASS correspondent Nikolay Krupenik]

[Text] Leningrad April 19 TASS—The Baltic Sea is threatened by a slow death due to ecological stresses and oxygen shortage. Soviet oceanologists believe this diagnosis still remains valid in spite of all the recent environment protection measures. Their conclusion is based on the results of new scientific observations and experiments carried out in accordance with the "Monok" programme. They described it to foreign colleagues during the international "Global Monitoring of the World Ocean" symposium, which ended in Leningrad today.

"The 'Monok' programme was drawn up by scientists of the USSR State Committee for Hydrometeorology jointly with their colleagues from Moscow academic institutes," Deputy Director of the Global Climate and Ecology Institute of the USSR State Committee for Hydrometeorology Professor Alla Tsiban told TASS. "Its purpose is to carry out long-term studies of marine ecological systems in order to forecast probable pollution immunity limits."

"The Baltic Sea is being monitored in this way by Soviet scientists over 14 years now. This is being done in the same areas of the sea surface all the time," Tsiban said. "The results are far from reassuring. The erstwhile rather clean Baltic Sea is now on the brink of a catastrophe due to man's careless economic efforts and poor water exchange with the ocean. Calculations show that up to 20 tonnes of metals and 50,000 tonnes of petroleum wastes are annually discharged into the sea. About one million tonnes of nitrogen and 77,000 tonnes of phosphorus-containing substances are washed into the sea by rains and rivers in addition to some 500,000 tonnes of nitrogen and phosphorus brought to the Baltic by acidic rains.

"The situation is aggravated by the fact that deeper layers of water are being poisoned by huge amounts of organic matter descending to the sea bottom. Everything living is threatened by extinction in some areas of the Baltic," Tsiban said.

The international symposium's resolution calls on the Baltic governments to draw up a programme of nature protection measures in order to reduce the amount of industrial waste discharged into the sea and to allocate money for the organisation of international monitoring.

Soviet Scientists View Hydrogen Sulfide Impact on Black Sea

91WN0322A Moscow RABOCHAYA TRIBUNA in Russian 6 Mar 91 pp 3-4

[Article by Mikhail Dmitruk: "Second Warning: A RABOCHAYA TRIBUNA Roundtable"]

[Text] **Can the Black Sea catch fire? This question was posed for the first time by M. Dmitruk in his article: "The Energy of the Sea Depths" (SOTSIALISTICHESKAYA INDUSTRIYA, 26 April 1989). Data were published in it that had earlier been held in secret. In the opinion of certain scientists, hydrogen sulfide pollution in the Black Sea has taken on a catastrophic character and threatens an enormous region with destruction.**

But the situation is not hopeless—catastrophe can be prevented if excess combustible gas is removed from the sea. Scientists have proposed doing this with the help of electric power plants that will operate on hydrogen sulfide separated out of deep waters. As by-product, they will produce sulfur

Since then, two years have passed. During this time, it has been possible to solve many problems posed by the scientists. But what has been done in practical terms? The participants in a "roundtable" conducted at RABOCHAYA TRIBUNA tell about this. Leading specialists on the hydrogen sulfide problem came together for the meeting:

Rustam Berovich Akhmedov—doctor of technical sciences, laureate of the State Prize and the USSR Council of Ministers Prize, general director of the Ekoenergetika State Intersectoral Scientific Production Association; **Boris Vasilyev**—doctor of technical sciences, director of laboratory for the hydrogen sulfide problem at the Scientific Research Institute [NII] for Fertilizers and Insectofungicides; **Petr Zaytsev**—doctor of chemical sciences, director of the analytical laboratory of the NII for Fertilizers and Insectofungicides; **Viktor Klimenko**—candidate of chemical sciences, docent of the chemistry faculty of the Moscow Motor Vehicle and Highway Institute.

Journalists from countries on the Black Sea and colleagues from central newspapers and agencies attended. The meeting was conducted by **Viktor Andriyanov, first deputy chief editor of RABOCHAYA TRIBUNA.**

R. Akhmedov: The problem of the Black Sea is producing many opinions, sometimes unqualified ones.

Here is a characteristic example. One author declared that the Black Sea ... will turn over if we build a hydrogen sulfide electric power plant there. Supposedly, by bringing water up from the bottom and returning it to the depths, we risk intermixing the upper and lower layers and, as a result, poisonous gas will escape to the surface. And a catastrophe will occur precisely because of an attempt to prevent it.

If he were interested, the author of this material could learn that we have no intention of returning processed water to the sea bottom. According to our technology, discharge will take place of about one hundred meters, in the upper part of the hydrogen sulfide layer. There is no question of a turnover of the sea. But, from such published material, a turnover in the consciousness of readers can occur—they will cease to believe the authors of an idea that can become the savior of the Black Sea.

Incompetent and irresponsible assertions form unfavorable public opinion. This hinders our work.

Question from APN special correspondent Yu. Katsnelson:

"Readers will surely ask you: Is it worthwhile working to save the Black Sea, which perhaps will never even catch fire?

R. Akhmedov: Such readers will not be insulted, I hope, but their conclusions are like the judgement of a person who is sitting on a powder keg while assuring himself that it will never explode.

Before talking about our studies, I shall recall a sad lesson of history, which must not be repeated.

There is data that hydrogen sulfide has already risen from the depths of the Black Sea and flared up in the air during the great Crimean earthquake of 1927. Border personnel in many places at that time saw grandiose flashes of flame above the sea, with a height of up to fifty meters and a width of several kilometers. And on the shore, a strong odor of hydrogen sulfide made itself felt.

According to data from radio hydrocarbon analysis, the lifeless zone of the Black sea began to grow swiftly following this earthquake. Sixty years ago, about three hundred meters separated it from the surface, but now—120 to 130 meters. And now, nobody can guarantee that in the next earthquake with an epicenter in the Black Sea, hydrogen sulfide will not come to the surface in a far greater quantity than apparently happened in 1927. What consequences does this outburst threaten?

An answer is suggested by an analogous incident which occurred several years ago in the African lake Nios. An enormous quantity of carbon dioxide gas is dispersed in its bottom layer. And so, once, during a small earthquake, it rose violently to the surface. A cloud of gas covered the neighboring area—and about two thousand persons suffocated in it.

Studies were subsequently carried out on this lake, which provided the key to solution of an ecological problem.. Scientists dropped a rubber hose down to the bottom of Nios and began to pump out water. But after several minutes it came up by itself—it turned into a fountain, like champagne from an opened bottle. This handmade eruption continued many hours, as long as the scientists themselves did not stop it. If such operations are carried out regularly, then the content of carbon dioxide in deep waters is reduced to non-dangerous limits and the catastrophe will not be repeated.

And, indeed, the Black Sea is incomparably larger than Lake Nios and the supplies of gas in it are immeasurably great. This is not the carbon dioxide that we drink with soda and breathe from our lungs, but extremely poisonous hydrogen sulfide. It is heavier than air and will hang over water and land. Even a small quantity of it is capable of causing tortuous death to humans and animals. It is difficult to imagine the scale of catastrophe that a rapid release of Black Sea hydrogen sulfide into the atmosphere can cause. In contrast to carbon dioxide, it can self-ignite, and its combustion temperature is like that of the best types of fuel ...

We have studied this problem for several years and state with full responsibility: Releases and self-ignition of hydrogen sulfide in the region of the Black Sea are entirely possible.

But there is a realistic way out of the situation. The high heat creation capability of hydrogen sulfide makes its utilization in the energy industry profitable. It can provide inexpensive electricity and heat.

It used to be economically unprofitable to raise the hydrogen-sulfide rich deep waters of the Black Sea. But we have developed a fundamentally new pumping system that makes this process a hundred-fold less expensive than it has been up until now.

This development is protected by several copyrights that have already been patented. We also have many other inventions for hydrogen sulfide energy production. But all the copyrights bear a stamp prohibiting them from being published in the open press. As a law-abiding citizen of my country, I am unable to talk about them in detail to a broad circle of readers—that is, to go beyond the limits of the first two popular-science articles about our work. And, therefore, I have not wanted to appear in the press.

But certain scientists and journalists have interpreted my silence as a sign of agreement with their fictions. They have continued with enthusiasm to pub lish their pseudo-refutations, confusing readers.

Editor of the science section of the newspaper DELOVOY MIR, Aleksandr Spiridonov:

"I recommend that those who assure us that there is no alternative to nuclear energy listen to what has been said. Here it is. Hydrogen sulfide stations could have a capacity of millions of kilowatts. Having made use of proposed technologies, it would be possible to reject a Crimean nuclear power plant.

R. Akhmedov: There are people who understand this. Two highly qualified commissions of the State Committee for Science and Technology [GKNT] and of the USSR Academy of Sciences have scrupulously studied our development work. Participating in their work were about 150 leading specialists on the complex of problems connected with the hydrogen sulfide of the Black Sea. And both commissions came to a unanimous conclusion, that the studies we have carried out are promising and they must be continued. This permitted the USSR Council of Ministers in 1985 to give instructions that obligate the USSR Ministry of Energy together with interested ministries and departments to initiate construction on the Black Sea of an experimental installation operating on hydrogen sulfide from deep waters. An analogous instruction was given to the State Committee for Science and Technology in 1989. But so far nothing has been done to carry out the decisions of the government.

Rayna Bycharova, Moscow correspondent of the Bulgarian newspaper ZEMEDELSKO ZNAME

What is hindering you?

R. Akhmedov: For several years we have been conducting our research on a voluntary basis. The state has not spent one kopeck on this work. But the conduct of large-scale experiments involves expenditures that we do not have the funds for.

The directors of the Ministry of Energy say that the production of sulphur and the other basic products that it is planned to obtain at our electric power plant does not fall within the tasks of the ministry. This, they say, is the prerogative of the Ministry of the Chemical Industry. But its directors say that the production of power at enterprises for the extraction of sulfur does not fall within the task of their ministry—and boot us like a soccer ball back to the Ministry of Energy. This game has continued for several years.

P. Zaytsev: As strange as it may seem at first glance, saving the Black Sea may be not ruinous but profitable for our country and other states. The fact is that sulfur is a raw material that is in very short supply. It is utilized mainly for production of sulfuric acid, which is widely used in many sectors of industry. In terms of production scale and the variety of its fields of application, sulfuric acid holds first place among the products of the chemical industry.

But deposits of sulfur within the territory of the Soviet Union have been exploited for a very long time and certain of them have been almost worked out. And new deposits have not been discovered. Therefore, we cannot ourselves satisfy our own requirements and we purchase one million tons of sulfur abroad annually. But requirements are constantly growing. Even now, the country utilizes several millions of tons of sulfur annually. And when our mines are exhausted, will it be necessary to increase purchases abroad?

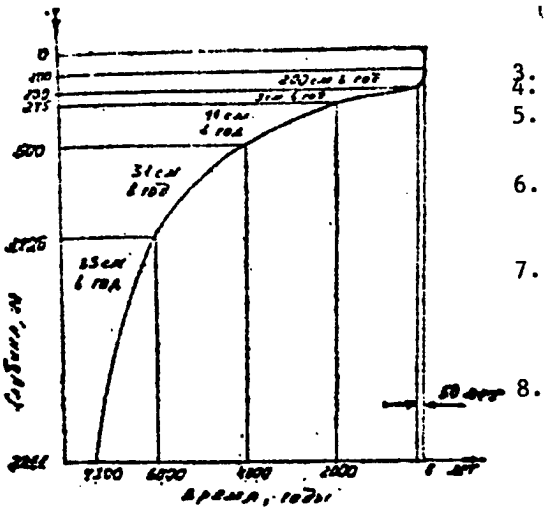
The yearly increase in sulfur in the Black Sea comes to fifty million tons. If we were to extract only this surplus, then we will be able to satisfy all our country's requirements and to become the largest exporter of sulfur on the world market. Its production can be increased even more if we set the task of reducing the upper limit of hydrogen sulfide to a non-dangerous level.

V. Andriyanov: Let us once again ask the question: Why is this idea having such difficulty in being accepted?

R. Akhmedov: The reason, in my opinion, is simple: The fate of hydrogen sulfide energy production is in the hands of incompetent people. When the question of financing this program was discussed not long ago in the GKNT, the decisive word turned out to be that of a venerable scientist who took a long time demonstrating that hydrogen sulfide ... cannot burn. And those present agreed with him. This speaks very eloquently about the level of competence of some responsible workers who do not know the elementary things from a school chemistry course. On their decision, financing of our research has again been put off for an undetermined period of time.

Question from the audience:

But where is the guarantee that an accident will not occur at the electric power plant, with the result that the gas that has been raised to the surface will ignite?



Graph of the rise of the upper boundary of the hydrogen sulfide zone during the last seven thousand years, based on the results of research using the radio hydrocarbon method.

Key:

1. depth in meters	5. 44 cm per year
2. time in years	6. 31 cm per year
3. 200 cm per year	7. 23 cm per year
4. 3 cm per year	8. 50 years

R. Zkhmedov: This is excluded for several reasons. The entire system in which the hydrogen sulfide is located is hermetically sealed and isolated from the external atmosphere. Low pressure, close to atmospheric, is maintained throughout the entire system. And most important—with the smallest irregularity it is sufficient to turn off the water deep feed pump in order to halt the entry of hydrogen sulfide into the system. All the more so if the pump itself goes out of order.

Ecologically clean sulfur and electric power—this is far from being everything that can be obtained at such a plant, which will operate on the basis of non-waste technology, without discharging harmful substances into the environment. The deep waters of the Black Sea are very rich in many useful substances—ammonia, manganese, rare earth elements ... It is not surprising that foreign firms are asking us to sell water, raised from the bottom, at the price of oil. And it is a shame to answer that we cannot even begin construction of an experimental installation for several years.

I am personally ready at my own responsibility and risk to organize a scientific research expedition in the Black Sea this year, even if I do not receive authorization, to say nothing about financial support.

B. Vasilyev: As a specialist in this field, I can state that technology for the processing of hydrogen sulfide into sulfur and sulfuric acid is well developed. Both in the USSR and abroad, large installations are operating on the basis of this technology.

Last year, samples of the deep waters of the Black Sea, taken from marked depths from one-and-a-half to two kilometers, were analyzed in our laboratory. The analyses confirmed the presence of hydrogen sulfide—up to ten milligrams per liter, as has been indicated in a number of articles published earlier.

But, in order to determine the optimal variant of utilization of the hydrogen sulfide, it is necessary to carry out laboratory and experimental work in direct proximity to the Black Sea. For this, it is necessary to create a laboratory there, in which installations for developing our processes of extracting hydrogen sulfide from water raised from the deep will be tested. Based on the results of these studies, it will be possible to determine the technical and economic characteristics of various processes for utilization Black Sea hydrogen sulfide.

In order for all this to become possible, it is urgently necessary to open financing and immediately to set about the organization of laboratory studies. And endless arguments concerning this problem will not solve it.

V. Klimenko: I view this problem much more broadly. Indeed, installations for purification of deep waters do not need power from outside. It can be obtained rather inexpensively by using hydrogen sulfide. It is expeditious to use a part of this energy to further purify the water of the scarce admixtures about which Rustam Berovich has already spoken. As a result, we would receive a great deal of fresh water, of which there is not enough in the Crimea and other regions of the Black Sea littoral.

If only toxic substances are extracted from the deep water—heavy metal salts, then the remaining water will contain a great many nutritional substances for plankton, algae, crustaceans, and fish, which can be raised on marine farms. This subsidiary economic activity can be carried on along with the plants. It would serve as an indicator of the ecological purity of the production of electric power, sulfur, and other basic materials.

Now, it is difficult even to imagine all the benefits which can be obtained from hydrogen sulfide industry and power generation—under one condition: If they have a good master. And so far, alas, there is not one.

V. Andriyanov: We hope nonetheless that he will be found in our country, and not abroad. RABOCHAYA TRIBUNA will take this problem under its cognizance and intends to advise our readers how it will be solved.

We are hoping for the support of the Ministry of Energy, the Ministry of the Petrochemical Industry, and the GKNT, which even earlier were given instructions by the government.

A. Spiridonov: Readers should not get the impression from our meeting that a new technocratic assault is

This diagram is being published in the open press for the first time. Regions of ignition in the Black Sea during the great Crimean earthquake of 1927 are shaded.

Key:
1. Scale 1:500,000
2. Epicenter of the earthquake (8-9 balls)
3. Yevpatoriya (4-5 balls)
4. Nikolayevka
5. Beregovoye
6. Kacha
7. Lukula
8. Konstantinovskiy ravelin
9. Sevastopol
10. Foros
11. Simenz
12. Alupka
13. Yalta
14. Gurzuf
15. Alushta
16. Morskoye
17. Sudak
18. (3-6 balls)

under preparation. Both yesterday and today, the position of Professor Akhmedov has not changed: It is first of all necessary to conduct studies, to obtain reliable, reverified experimental data. And only after this can a technological solution of the problem be discussed. This must be a joint discussion by specialists and the public. I hope it will take place, when necessary studies have been carried out.

R. Akhmedov: The time has come to conduct a whole complex of experimental studies with the aid of a specially equipped vessel, on which it will be possible to define more precisely data necessary for the technical planning of experimental industrial installations. Representatives of a whole series of specialized organizations must participate in this work. Expenses at this stage of operations will come to not less than one million rubles. Who will provide them and under what conditions? We hope to receive concrete proposals after publication of the materials from this "roundtable."

Sofia Conference on Oil Prospecting in Black Sea Shelf

AU2004190891 Sofia DEMOKRATSIYA in Bulgarian 16 Apr 91 p 2

[Lev Kokushkin report]

[Excerpt] At the present time, about 35 percent of world oil production comes from offshore fields. Over 60 coastal states obtain both petroleum and gas from thousands of fields located in their coastal waters. As for Bulgaria, on 31 May 1951 the first probe well started up near Shabla. From this well we have received minimal amounts of petroleum and have also been causing major contamination of the surrounding Black Sea waters.

This information was reported at a colloquium on the subject "Prospecting and Operating Oil and Gas Fields: Ecological Aspects," which was organized in Sofia on 15 April by the Geopont Company of Varna. Apart from

representatives from various Bulgarian institutes, committees, and enterprises, the participants also included experts from such famous companies as British Gas, Enterprise Oil (UK), and Texaco (United States).

All those present agreed that petroleum and gas reserves do exist underground in Bulgaria, especially in the Black Sea shelf, and that the only possible reason preventing us from obtaining this oil and gas is the lack of equipment and technologies. The aforementioned companies, as well as two others from Belgium and Austria, are ready to sign a contract with our government under which they will make test drillings and, if oil or gas fields are discovered, it is planned to form joint companies to exploit them. Mr. Hughes, regional director of British Gas; Mr. Nunn, Texaco's regional manager for Europe, and Mr. Blunsher, director for safety and environmental protection of Enterprise Oil, despite the fact that they are strong competitors in the world market, this time all agreed that their companies are in a position to complete prospecting operations within six months, after which they will build a commercial production platform within three years. [passage omitted on Black Sea environmental protection]

USSR To Receive Finnish Environmental Protection Support

LD1804233391 Helsinki Domestic Service in Finnish 1500 GMT 18 Apr 91

[Report by correspondent Jaana Kanninen, including recorded interview with Timo Maekelae, environmental project director, place and date not given]

[Text] [Announcer] Finland is to grant support to environmental protection investments in the Soviet regions close to Finland under the same conditions as for domestic investments. In practice, Finland can support important environmental protection projects with about a quarter of their total cost. At the first stage aid will be given, for instance, to the Leningrad waste water purification plant in the elimination of phosphor, and in removing sulphur at the Narva shale-fired power station. A report by Jaana Kanninen:

[Kanninen] Finland has identified 16 locations in the Soviet Union where the protection of the environment would be urgent from Finland's own point of view. The list includes almost everything possible, from sulphur removal at Kostamus [Kostomusksha], to the purification of the waste water in Tallinn. The Council of State decided today the basis for the selection of targets that will really be supported. The first condition is that the project is essential, apart form the Soviet Union, for Finland's environmental protection. There are also other conditions. Project Director Timo Maekelae:

[Maekelae] Support will be given on the condition that the local institutions and authortities will be responsible in the main for the financing of these projects. This is an absolute first condition. As regards the currency share, finance must be found, through offset deals and other possible arrangements, by the local authorities. These are the basic starting point on the basis of which the support can then be discussed.

[Kanninen] In other words, considerable funds must be found, also in the Soviet Union, before we can be sure that these projects will really get going. Do you believe that with the present economic situation in the Soviet Union this will really happen?

[Maekelae] Well, we really have to believe it. It is largely also a question of the priority of these projects in the Soviet Union, in regions close to Finland, being sufficiently high so that finance will be found for them.

[Kanninen] Timo Maekelae means that putting these matters in order is already beginning to be a foreign political issue for the Soviet Union. Thus Finland intends to support environmental protection in the Soviet Union on equally advantageous conditions as when it grants interest subsidies for domestic environmental protection investments, for instance. In practice, Finnish aid can amount to a quarter of the total costs of the project—that is, the idea is not to pour money into the Soviet Union at will, but rather to kick off the neighbor's own desire to put matters right.

[Maekelae] Yes, that really is the issue.

[Kanninen] Although Finland's list of wishes is long, there are concrete plans for five places. The modernization of the nickel smeltery on the Kola Peninsula is said to be progressing satisfactorily. In the near future assistance will be given to the acquisition of oil fighting equipment for Leningrad, to the removal of phosphor at the Leningrad waste water purification plant, and to the removal of sulphur at Kostamus and the Narva shale-fired power station. All these are matters that have a substantial effect on either the air or water in Finland.

And one more thing which, to quote Environment Minister Kaj Barland, has aroused international interest: Finland will forgive Poland debts totally 90 million Finnish markkas [FM] in exchange for environment protection investments. This, too, has a direct effect on the well-being of the Finns: Poland is the worst polluter of the Baltic Sea, and the second-worst outside polluter of Finnish air after the Soviet Union.

[Announcer] Just under FM 90 million has been earmarked for these subsidies for Soviet environment protection for this year.

Germany, Poland Cooperate on Environmental Technology

91MI0239A Wuerzburg UMWELTMAGAZIN in German Jan-Feb 91 p 68

[Text] A joint declaration of intent on action in the environmental sector has been signed by the Land Government of North Rhine-Westphalia and the Minister of the Environment, Nature Reserves, and Forestry of the Republic of Poland, Dr. Bronislaw Kaminski. Long-term

cooperation is planned in environmental technology, for example, sewage treatment, land reclamation and recultivation, coke oven and power station engineering, and air and water monitoring.

For the first time major technical pilot projects will also be carried out. Because of the extreme pollution in Upper Silesia, the pilot environmental engineering plants will be set up exclusively in this region.

An automatic emission monitoring system will be set up in the Katowice area, a region that has an especially high level of air pollution. Only random samplings for individual pollutants have been made to date.

The Lasiska foundry, where some 150,000 tonnes of ferrous alloys are smelted annually, will be fitted out with modern technologies to exhaust dust from the furnaces and to process and recycle slag. Some furnace exhaust gases are released completely untreated from this foundry into the atmosphere.

Modern processes will be used to reduce the dust, sulfur dioxide, and nitrogen monoxide emissions from the Siersza hard coal power station in Trezebinia to the minimum. At present, nitrogen monoxide concentrations are around 600 mg/m^3 (maximum limit in the Federal Republic of Germany is 200 mg/m^3). Wet sulfurization systems will first be installed for desulfurization.

Environmental protection measures, first and foremost a modern dry cooling system for coke, will be installed at the Radlin coking plant.

Specialists and companies from the Republic of Poland and North Rhine- Westphalia also intend to cooperate closely in the future on sewage treatment plant construction. Water pollution in heavily industrialized Upper Silesia is considerably higher than in other regions of Poland. Forty-two percent of sewage is released untreated. At present there is no disposal program for sewage sludge.

Low-interest loans to implement these pilot projects can be obtained through the Westdeutsche Landesbank Giro Center in Duesseldorf, and secured through Hermes Securities. The Land of North Rhine-Westphalia also stands surety for joint ventures in Poland. In addition, the government of the Land of North Rhine-Westphalia intends to apply to the EC for financial support.

PRC Meteorological Association Sponsors Global Warming Seminar

OW1604211891 Beijing XINHUA in English 1453 GMT 16 Apr 91

[Text] Beijing, April 16 (XINHUA)—An international seminar being held here, from today until April 19, will seek new approaches for solving problems related to the world's worsening environment and global warming.

The seminar is being co-sponsored by the State Meteorological Administration of China and the Worldwide Fund for Nature. The participants will also study the impact of the greenhouse effect on China's wildlife, as well as on forest resources and agriculture.

An expert from the Chinese Academy of Meteorological Sciences said it is expected that a number of new approaches will be introduced to enhance international cooperation. In addition, he said advanced technical measures will be introduced in Third World countries to help minimize the effects.

Qu Geping, director of China's National Environmental Protection Agency, told participants that approximately three-fourths of the world's carbon dioxide is discharged by the industrial countries. Consequently, these countries should become world leaders in controlling discharges and should wholeheartedly support the international community in any such actions.

Qu said that while China is a developing country with a small per-capita energy consumption, it nonetheless produced over one billion tons of standard coal in 1989. As a result, China also faces a serious challenge in controlling air pollution, he said.

Thus far, according to Qu, China has adopted a number of measures such as improving the use of energy, minimizing both smog and dust. These measures have been effective in helping to control air pollution in the cities.

Zou Jingmeng, director of China's State Meteorological Administration, expressed his hope that the foreign participants from Britain, the United States, Sweden and the Soviet Union will gain a thorough and systematic understandng of China's environmental and meteorological research, and will forge closer ties in the area of bilateral co-operation.

International Ban Imposed on Thai Wildlife Trade

BK1604042991 Bangkok THE NATION in English 16 Apr 91 p A4

[Text] Gland, Switzerland—An international ban on trade in wildlife products with Thailand was agreed over the weekend by the Convention on International Trade in Endangered Species (CITES).

The move follows disclosure by the World Wide Fund for Nature (WWF) recently of Thailand's central role in a massive illegal trade in endangered species. WWF dubbed Thailand the "wildlife supermarket of the world" and one of the world's worst violators of CITES.

CITES Standing Committee—the executive body of the convention—has agreed that notification should be sent to all 110 member countries recommending that they no longer be involved in the import or export to Thailand of any animal, plant or product of an animal or plant that it covered by the convention.

The move is likely to cost Thailand millions of dollars in lost trade.

WWF welcomed CITES' decision and urged all signatories to implement it immediately. "If the European Community, the United States and Japan—the main markets for Thai wildlife products—impose a ban immediately, Thailand will be under severe economic pressure to comply with CITES and stop trading in endangered species," said Dr. Simon Lyster, Treaties Officer for WWF International.

"Thailand is a party to the CITES convention, so WWF and CITES are asking Thailand to do no more than carry out the obligation which it voluntarily signed," Dr. Lyster added.

Last week WWF exposed Thailand's illicit wildlife trade in a special investigative report which revealed that the country had no laws to stop the import of non-Thai wildlife species.

Tens of thousands of protected animals and plants from all over the world pass through Thailand each year. They are either sold to tourists or local people or are given permits for re-export.

Ivory from Africa, caiman skins from Latin America, orangutans and palm cockatoos from Indonesia—all illegally exported—are some of the species imported into Thailand.

GHANA

'Green Forum' To Publicize Accra's Problems

91WN0346A Accra PEOPLE'S DAILY GRAPHIC in English 30 Jan 91 pp 1, 8-9

[Article by Victoria Odoi and Evelyn Quartey]

[Text] The appalling nature and inadequacy of facilities for waste disposal, bad social habits and general environmental problems associated with rapid urbanisation in Accra has once again come into sharp focus.

The recent spate of reported cholera outbreak in certain areas of Accra are some of the frightening realities of the causes of insanitary social conditions in the city.

A visit to certain parts of Accra by members of the Green Forum for Development, a movement of environmental journalists and communicators, revealed that streams and drains have been seriously polluted through the dumping of excreta, refuse and spent oils from garages.

The tour which took members to a water source, near Opeibea House, which flows through the Legion Village and emerges at Kawokudi Junction through the Nima drain to Ring Road Central, through Asylum Down to Kwame Nkrumah Circle where it joins the Odaw stream revealed the appalling nature of the sanitary condition.

Dr M.A. Odei, Director of the Institute of Acquatic Biology, and a patron of the movement, who took members round noted that the negative human activities which come into contact with the water sources along these drains have contributed to the eventual extinction of life in the Korle Lagoon, resulting in the stench that permeates the Lagoon.

For instance, he said the illegal winning of sand at Kawokudi Junction apart from undermining the bridge, prevents the free flow of water thereby breeding mosquitoes.

He said children who are most often attracted to these polluted standing pools face health hazards such as intestinal worms. Besides, residents use these water for domestic purposes during water shortages.

Dr Odei, however, said the problem of sanitation and proper drainage system is not beyond modern technology of waste disposal.

He, therefore, appealed to the authorities concerned to resolve the problem of sanitation and drainage once and for all in order to avoid flooding during the rainy season and outbreak of epidemics.

During the tour, it came to light that despite the numerous educational programmes on sanitation, members of the public continue to throw refuse into drains from moving vehicles and urinate indiscriminately.

Due to this, members of the movement have also appealed to the law enforcement agencies to revive the law prohibiting these behaviours.

The movement which was formed some six months ago aims at educating the public and creating awareness on environmental hazards through their communication skills.

KENYA

Factories Face Prosecution for Pollution

91WN0347A Nairobi KENYA TIMES in English 21 Feb 91 p 2

[Article by Frank Nyagah]

[Text] The Kiambu District Commissioner, Mr. Samwel Oreta, yesterday threatened to prosecute Thika-based industries and coffee factories which do not control pollution in the area.

Mr. Oreta gave the warning when he addressed industrialists and farm managers at the Thika Municipal Hall.

The DC said that the administration would have no alternative but to take legal action against firms which deliberately spew out filth into the environment.

During the meeting, a representative of a Thika-based industry admitted that one of his engineers may have died after being exposed to toxic effluent and chemicals. The revelation was made by Thika Mayor, Councillor Douglas Mundia.

Noting that Thika Town had about 25 major industries and hundreds minor ones, Mr. Oreta said that all of them emitted hazardous waste into the environment.

The effluent, he said, included solid waste, which comes from Kang'oki area, waste water which is drained into Thika and Chania rivers, air pollution from textile factories and noise pollution.

Mr. Oreta said the industrialists should be responsible enough to conserve the environment.

The DC said that he was not going to allow any industry to continue polluting the environment.

He, however, praised a few industries in the town for their commitment in environmental conservation.

Councillor Mundia said that the municipality had already taken legal action against the offending industries and some cases were already in court.

A senior factory inspector in the Ministry of Labor headquarters, Mr. J. Onyoyo, said that it was now a policy of his ministry that industries should form a safety committee on occupational health hazards in their factories.

Pollution Kills Animals in Game Reserves

91WN0347B Nairobi KENYA TIMES in English 2 Mar 91 p 6

[Article by Manoah Esipisu]

[Text] Hundreds of wild animals are being killed by toxic waste and untreated down sewage dumped in one of Kenya's top game reserves, wildlife officials say.

Beer bottles, condoms, polythene paper and old clothes litter the shores at Lake Nakuru National Park, once famous for its flocks of pink flamingoes.

Now the flamingoes appear to have been driven away by the filth and stench—and park wardens fear for the rest of the wildlife in their charge.

"The animals are in great danger, but all we can do is sit and wait," said assistant warden Jane Kahata.

Wildlife officials say hundreds of the antelope and warthog that graze on the lake shores have died, and vultures and hyenas—nature's least choosy scavengers—leave the rotting carcasses untouched.

Acrid Smell

Wardens say over 500 waterbuck from a 4,000-strong population have perished in the past two months.

The acrid smell of decomposing carcasses fills the air in the north of the park.

"We try to remove the carcasses as soon as we discover new ones. We do not want to keep away tourists," Kahata said.

Wildlife officials say the lake is the dumping point for rubbish from the nearby industrial town of Nakuru, about 200 km northwest of the capital, Nairobi.

Factory waste and untreated sewage is being poured into the lake, they say.

With the onset of the breeding season last year thousands of flamingoes flew to their traditional nesting grounds on neighboring Rift Valley lakes.

Official Denials

Experts say the birds should have returned months ago, but could have been deterred by Lake Nakuru's pollution.

Some Government officials deny that the animal deaths are due to pollution and say they have been caused by overpopulation.

The reduction in numbers will ease competition for food, they add. But state run Kenya Wildlife Services (KWS), set up in 1990 to end years of corrupt mismanagement of the country's dwindling wildlife resources, admits there is a pollution problem at Lake Nakuru.

"Everybody knows and is concerned about the effluent from Nakuru town. It's rubbish for civic authorities to pretend the pollution problem is not there," said KWS deputy director Joe Kioko.

He said culling had not been carried out at Lake Nakuru because nobody was sure if overcrowding was taking place.

"There could be other environmental reasons which we have not yet found out. All these require funds, but we have tried our best," Kioko said.

Wildlife officials say some visitors have curtailed holidays at Lake Nakuru because of the dead animals.

Kenya, which boasts 59 wildlife parks, earned 8.64 billion shillings (378 million dollars) from tourism in the 1989/90 financial year, more than any other sector of the economy.

Lake Nakuru is Kenya's second most profitable park, according to officials.

Visitors Reduced

The Government is desperately concerned about the tourism industry amid a big fall-off in visitors caused by the Gulf crisis.

The 220 square km (138 square miles) Lake Nakuru park, once part of a natural paradise of savannah, swamps and forests, is now hemmed in on all sides by urban development and farmland.

It is one of the few game reserves with as many as four the "Big Five" wild animals—leopard, lion, rhino and buffalo. Only elephants are not found here.

Lake Nakuru has been designated as one of Kenya's main breeding areas for rhino—there are about 20 in the park.

Decimated by poachers, the country's rhino population now stands at less than 500.

Despite promises by KWS to reinvest more of the profits from tourism in managing the parks, wildlife officials say Lake Nakuru receives very little.

"It is the policy to return as much funds as are obtained from the parks back to them, but it may be true that this has not been entirely the case," Kioko said.

"We are not generating a lot of funds at the moment and we give the park as much as we can, but it may not be enough."

NIGERIA

Desert Encroaching on Productive Land

91WN0344A Lagos DAILY TIMES in English
26 Feb 91 p 29

[Text] One of the most profound environmental problem of the world today which impinge on human survival itself is *drought*. The problem has been particularly bad for developing nations, especially those of Africa.

For upward of two decades now, rainfall on the continent has been on the downward trend. The consequence is that millions of people are starving in several countries as a result of the declining food production combined with *strife*, as in Ethiopia and Sudan.

Desert encroachment is another. Everyday, the Sahara inches its way southward. In Nigeria it has been observed that the daily march of the desert, when viewed over the 1,320-km east-west stretch of northern Nigeria, to which the problem is still restricted, translates into a yearly total of about 25 sq km of once productive land. *The country's total land area is just 923,773 sq km!*

In at least five states of Sahelian northern Nigeria, people with hitherto steady styles of living, many of them farmers, have since become nomads of sorts. Every two or three years, they are forced to move a little south, their land having been claimed by the desert, and their occupation disrupted. Consequently, a good many have had to abandon farming and fled *their former homes* to take up nonexistent jobs in the cities.

Combining with desertification, drought has continued to cause a steady decline in agricultural production in Nigeria and many of the nations of Africa. Production of root crops from which many Africans derive their staple foods, has grown in the last two decades at rates far below the population growth rate, declining in fact in 1983 and 1987. In some parts of Borno State, crop yields last year were as low as 15 percent despite the rapid population growth rate in the state and the rest of Nigeria. The situation was not much different in Kano State, where the capital city (Kano) is also threatened by desert encroachment. The city sits on lattitude 120N, and the Sahara has claimed up to Dambatta, 60 km north of Kano City.

Drought and desert encroachment are by no means strange bedfellows—the one exacerbates the other and its effects, and they both have their roots as much in nature as in man's activities.

Participants at the United Nations Conference on Desertification, Nairobi, Kenya, in 1977 agreed that desertification is caused primarily by man's activities or climatic factors. Climate change, with rising temperature, declining rainfall, irregular and unusual seasonal changes, are the result of man's activities. It is a vicious cycle of man cutting down trees for fuel, building construction and other uses at a rate that natural replenishment processes cannot cope with. With the world population of 5.3 billion people growing at a rate which makes it double every 50 years or so (in Nigeria it is every 23 years), man clears forest land at an alarming rate for agricultural and housing purposes, and to make room for roads. Forest so cleared is either burnt, leading to emission of great quantities of carbon dioxide, or methane if left to rot away. Both gases contribute 25 percent of global warming and the consequent climate change. As the warming increases, there is less rainfall, and the desert marches inexorably on!

Discourse

According to the "World Resources 1990-91" report, the rate of deforestation in Nigeria in the 1980s was of the order of 400,000 hectares yearly, while reforestation was a mere 32,000 hectares. The rate of forest loss, therefore was 2.7 percent every year. At that rate, Nigeria has only 77 years to be without forest cover! Presently, her forest cover is put at 30 percent (or 277,132 sq km), 25 percent less than what is considered viable. But even the average national forest cover is cold comfort, as Kano state is 70 percent tenanted, 15 percent farmed, 5 percent arid, leaving its forest land at an abysmally low 5 percent.

The Nigerian states worst hit by desertification—Borno, Bauchi, Kano, Katsina and Sokoto—altogether constitute 38 percent of the country's land area and over 25 percent of the population. The threat of the desert taking over the land is such that Colonel Abdu One Mohammed, in early 1989 while he was governor of Borno State, warned that the rivers Niger and Benue might be drained by the Sahara in a few years' time if nothing was done to stop the desert's relentless march. Already, many rivers have been overcome completely while others flow only at the peak of the rains.

In the desert-threatened Sahelian north, rainfall used to occur from between May and July to September. Now, however, it has declined to commencing in June/July of the year to September, and from a total level of 400-600 millimetres to 300-400 millimetres. A significant drop no doubt!

As farming, animal grazing, forest clearing, and bush burning lead to loss of vegetation, soil erosion and loss of fertility, and, ultimately, the twin problem of drought and desertification, the people affected have had to abandon their former homes. Unfortunately they not only took with them the very problems which they caused with their lifestyles and use of wood as fuel, social upheavals have been reported in their new places of abode as well. Competition with their 'hosts' for agricultural land has not been viewed with pleasure. Cattle nomads have incurred the wrath of farmers as their herds ate up growing crops, trampled and pulverized the land, fuelling soil compaction or formation of dunes and aggravating soil erosion and sandstorms. Consequent

loss of grazing land has led to increased mortality among livestock, worsening the already bad human nutritional problem.

Although the issue of drought and desertification in Nigeria has been recognized for over two decades now, real efforts to come to terms with them are quite recent, the first being the Federal Government Arid Zone Afforestation Programme begun in 1977. The programme achieved little because it concentrated on mere distribution of tree seedlings rather than on discouraging the activities which led to the problem and enlisting the active participation of the public in reforestation.

The programme was modified in 1986 with funding coming from the 1 percent budgetary allocation to the Ecological Problems Fund. Between 1986 and last year, some of them received substantial grants from the fund for their reforestation and other desert and drought control programmes.

Kano State has received about N10.2 million and established 1.174 km of protective shelterbelt with such drought resistant trees as eucalyptus, neem, acacia, cashew, mango guava and date palm, to check wind speed, erosion and evaporation.

Borno, perhaps the worst hit of the five desert-threatened states, on its own votes N250,000 annually for irrigation purposes and to generate tree planting in its local governments. Since the Arid Zone Afforestation Programme was modified in 1986, it has drawn some N15.7 million *established 93* kilometres of shelterbelt and produced 10 million seedlings.

Katsina and Sokoto states have also followed suit, with 250 km of shelter belt established and 5 million seedlings, produced in Katsina. In anticipation of the devastating effects of desertification, Kaduna and Niger states have also begun promoting non-wood sources of energy such as cooking gas and keresene stoves. In this area, Borno in 1989 procured and distributed 6,000 gas cookers and accessories to its employees. It was a drop-in-the-ocean gesture as it was for only workers on GL 06-13 who were seen by some critics as the wrong target. Even then there were reports of the items being sold by some supposedly cash-strapped beneficiaries who then reverted to burning fuel-wood.

There have also been aid from international donor agencies such as the European Community which in 1988 approved N350 million (ECU 35 million) to combat desertification in Nigeria. The World Bank has on its part granted a loan of 15.3 million pounds sterling (about N275m). The Japanese agency, JICA, has also been involved in both research and actual reforestation in Kaduna and Plateau states.

On the home front, there is the Forestry Research Institute of Nigeria (FRIN) which is into drought resistant trees research. Other governmental and non-governmental agencies working to stop the March of the Sahara include the National Committee on Drought and Desertification Control (NCDDC), the Nigerian Environmental Study and Action Team (NEST) and the Nigerian Conservation Foundation, as well as the Centre for Arid Zone Studies of the University of Maiduguri, and the Centre for Appropriate Technology of Ramat Polytechnic, Maiduguri.

Inaugurated on 4 September 1989 to replace the Arid Zone Afforestation Committee which came into being in 1977, the National Committee on Drought and Desertification Control (NCDDC) is headed by the Minister of Agriculture and Natural Resources. The committee, which is the apex of all efforts to combat drought and desertification in the country, has as members the eight commissioners in charge of forestry matters in the desert threatened states.

In pursuing its objectives of ameliorating the effects of the harsh climate of the arid and semi-arid zones, the NCDDC formulates polity guidelines. It also advises states on rational land use in relation to the problem, mobilises financial resources locally and internationally to address the problems, and serves as the link between affected states, donor organizations and local research institutes.

Despite government's concern to halt drought and desertification, ignorance of the need and means on the part of the public is a major factor in the way of success. And there is the pressure of population growth on agricultural production and housing.

Government recognises all the needs but is often hindered by lack of funds to meet all competing demands and political considerations. The irrigated shelterbelt required to cover the northern international boundary alone is put at a whopping N402 million.

Although, government realises the particular danger posed by bush burning, the practice persists among farmers and hunters. While farmers use fire to dispose of cleared farmland or to aid clearing, hunters are known to start bush fires to ensnare game. Either way, forest fires far beyond their desires or expectations are often started and valuable trees and, not infrequently, croplands are destroyed.

It is one environmental problem which many states have prohibited and which must stop if the problem of deforestation, drought and desertification is to be solved. Local governments and private sector organizations have a role to play in this regard.

As the local government authorities have become more autonomous, with their allocations reaching them direct from the federal government, they are now in a position to vote money to address the problem. Private organizations on their part could set aside some of their profits to improve the environment in which they operate and the forests which by and large are the sources of their raw materials.

Toxic Wastes Threaten Ogun Water Supply

91WN0351A Lagos THE GUARDIAN in English 2 Mar 91 p 3

[Article by Tunde Oladepo, Abeokuta]

[Text] Improperly disposed toxic industrial effluents and by-products are threatening the supply of clean water in Ogun State.

Specifically, sullage waste water indiscriminately discharged from a number of chemical industries in Ota, the state's largest industrial settlement, are said to have seeped through sedimentary soil formation of Ota area to pollute under-ground water.

Experts say high concentration of the effluents in water consumed by human beings and animals could induce large-scale diarrhea-related diseases. Also plant life would be endangered if a larger concentration of the effluents get into rivers and running water.

But the state's task force on environmental sanitation, which as far back as 1989, expressed fears about the effects of the waste products on the environment, is currently bogged down by problems of inadequate equipment.

Sources said an asbestos manufacturing company, an ink maker, a food processing company and a brewery were warned to treat their waste waters properly when the task force first observed the pollution in 1989.

Then, a stagnant pool of waste water from the factories gradually corroded and caused a foul smelling deep gully on the Lynson Chemical Avenue at Ota. The situation, which changed immediately after the environmental task forces complaint, has since worsened.

The waste water from the Ewekoro Cement Factory, which is occasionally released from the factory's sewage reservoir, is also said to be threatening farm life in the factory's premises. In a letter to the company after a recent inspection visit, the task force said the water contained some unspecified chemical compounds.

Task force officials confirmed that there was a real threat to the environment not only in the industrial areas but also in residential areas because of the poor waste disposal system of the state. They said the two "skip eater" incineration vehicles bought by the government for the task force use last July, have packed up due to lack of spare parts and maintenance costs.

They explained that all the 184 refuse containers located in various parts of the state could not be emptied since the vehicles broke down.

The poor state of sanitation has also contributed to the absence of an environmental protection commission. The decree, which established the Federal Environmental Protection Agency (FEPA), mandated each of the 21 states and Abuja to set up environmental protection commissions for the treatment of chemical and domestic wastes in their domains.

THE GUARDIAN learnt yesterday that a proposal which would enhance the task force's capability to fight environmental pollution was submitted by concerned environmentalists to the Governor, Navy Captain Oladeinde Joseph, last year.

The proposal suggested among other things, that the activities of the task force should be commercialized in line with the administration policy on privatization and commercialization.

This, according to the proposal, would not only shore up the revenue generating capacity of the force and consequently make it less dependent on the government for funding, but also eliminate waste and save it from bureaucratic bottleneck.

Government To Implement Oil Spills Plan

91WN0375A Kaduna NEW NIGERIAN in English 19 Feb 91 p 28

[First paragraph introductory paragraph printed in bold print]

[Text] The Federal Government yesterday announced that it would initiate a functional National Oil Spills Contingency Plan before the end of this year.

Making the pledge in Badagry at an international symposium on oil spill contingency plan, Vice President, Augustus Aikhomu said government was poised to take the initiative in view of the constant threat of pollution arising from petroleum exploration.

Speaking through the Petroleum Resources Minister, Professor Jubril Aminu, Admiral Aikhomu said between 1976 and 1990, a total of 2,796 oil spill incidents were reported by oil companies in the country with an estimated total 2,105,393 barrels of oil spilled into the nation's environments.

He was of the view that spillage of this scale could also threaten neighbouring international countries.

What is therefore more appropriate, Admiral Aikhomu said is a contingency or an organised plan of action for a fast response for the prevention, control and clean-up of oil spill of any magnitude whenever it occurs."

The Vice-president was particularly happy, that, although the country has not had a functional oil spill plan, the oil prospecting companies have developed and implemented two levels of contingency planning, which are the company plan for minor spills and cooperation plan for medium oil spills.

The National Oil Spill which is expected to be the third level of response, will focus on major disastrous spill. He

noted that the international committee for the formulation of a National Oil Contingency Plan, set up in 1988 was carrying out its assignment seriously.

Speaking earlier, Lagos State Governor, Col. Raji Rasaki said the safety of lives and preservation of the environment, constitutes sensitive issues, which the government cannot afford to neglect.

He said the oil producing states have been facing substantial environmental hazards.

The chairman, national committee on oil spill contingency planning, Navy Captain Joe Abulu said since oil pollution does not respect international boundaries, the symposium, will also give thought to the immediate and near future emplacement of a regional contingency plan.

SOUTH AFRICA

Plans To Mine Transkei Dune Forests Revealed

91WN0374A Johannesburg THE WEEKLY MAIL in English 22-27 Mar 91 p 5

[Article by Eddie Koch: "Holomisa Backs Dune Mining"]

[Text] General Bantu Holomisa, the military leader of Transkei, this week confirmed plans to stripmine rare dune forests in the homeland for titanium and said conservationists opposed to the scheme had displayed a disregard for the welfare of his people.

THE WEEKLY MAIL revealed last week that the Rand Mines corporation had plans to strip indigenous trees and vegetation in the Nxaxo and Kobanqaba forests on the southern Transkei coast so that the dunes could be mined for titanium.

Energy researcher Anton Eberhard has estimated that all natural woodgrowth in South Africa's rural homelands will be denuded by the year 2020 unless something is done to stop the destruction.

But Transkei is one of the most economically depressed areas in the country and the establishment of a mine promises to attract industrial infrastructure and employ at least 600 people for 30 years.

"If the mine proves to be economically feasible it will go ahead," said Holomisa. "It is vital to generate revenue and jobs in Transkei."

Holomisa stressed, however, that his administration would conduct full environment impact studies before allowing the mine to open.

"I love nature and if someone can suggest a way that our economy can grow and jobs be provided without destroying those forests then we would be happy to consider their suggestions," Holomisa said.

"Many of the conservationists who have expressed opposition to the scheme are arrogant and are putting the future of a forest before the needs of people. The coast of Natal has already been spoiled by economic development. While commercial interests have been able to thrive there people are now saying that it is Transkei and its people who must sacrifice to save the environment."

Some conservation bodies, including the Wildlife Society of Southern Africa, have suggested the creation of a nature reserve which would attract tourist trade and industry.

Plans to mine for titanium, a rare metal found in beach sand and used in the manufacture of paint and military missiles, sparked an unprecedented wave of outrage in South Africa last year when it was announced that a Canadian-owned multinational had plans to mine a similar dune forest near St. Lucia.

Conservationists said the Rand Mines scheme in Transkei would cause environmental problems that will eclipse those associated with the scheme at St. Lucia. Unlike the Natal forests, which have been planted over with pine, those in the Transkei are among the few indigenous forests of their kind left.

State Bars Large Eastern Transvaal Coal-Related Industries

MB1704180291 Johannesburg Domestic Service in English 1500 GMT 17 Apr 91

[Text] The construction of big coal-related industries on the eastern Transvaal highveld has been banned.

Senior pollution officer of the Department of National Health and Population Development Mr. Martin Lloyd said at a seminar at Bethel that the only exception would be if an industry complied with the necessary antipollution measures laid down by the department. He said his department had instructed Eskom [Electricity Supply Commission] and other industries to reduce all visible air pollution at power stations. Mr. Lloyd said it was unlikely that the pollution levels measured in that region were detrimental to people's health.

He said research by the CSIR [Council for Scientific and Industrial Research], Eskom, and several state institutions had shown that the pollution problem was not as critical as was believed.

Environmental Bureau Reports Improved Urban Conditions

OW1304104091 Beijing XINHUA Domestic Service in Chinese 0137 GMT 13 Apr 91

[By reporter Zhuo Peirong (0587 1014 2837) and apprentice reporter Yuan Jun (5913 0193)]

[Text] Beijing, 13 Apr (XINHUA)—The State Environmental Protection Bureau announced here yesterday: China's urban environmental quality improved during the Seventh Five-Year-Plan period. While China's total industrial output value in 1990 increased by 85 percent over 1985, the environmental quality in most cities did not worsen with the increase, and the environmental quality in some cities even improved remarkably.

A comparison between 1990 and 1985 shows that in the 32 cities selected to pay special attention to environmental protection, the total volume of suspended particles in the atmosphere decreased in 24 cities, remained same in four cities, and decreased in four cities; and the density of sulfur dioxide in the atmosphere lowered in 18 cities, remained same in five cities, and rose in nine cities.

A comparison between 1989 and 1980 in the 32 cities shows that the average value of chemical oxygen demand of surface water decreased in six cities, remained same in 20 cities, and increased in six cities. The quality of their drinking water sources generally improved because 28 of them have formulated regulations for protection of drinking water sources, and most of them have established drinking water source protection zones.

According to a responsible person of the State Environmental Protection Bureau, China's cities had generally raised their awareness of the importance of environmental protection during the Seventh Five-Year-Plan period. Their environmental protection work is now occupying an important position in urban development. So far, China has built more than 30,000 industrial waste water processing plants, and improved 190,000 boilers and 42,000 industrial kilns and furnaces. In 1989, the rates of industrial waste water processing, boiler improvement, and industrial kiln and furnace improvement in China were 43 percent, 67 percent and 44 percent respectively. Many city mayors have personally taken a hand in the environmental protection work.

During the Seventh Five-Year-Plan period, more laws and regulations concerning urban environmental protection and urban construction were formulated, and the environmental management system became even better. China has promulgated the "Atmospheric Pollution Prevention and Control Law," "Environmental Protection Law," "Urban Planning Law," and "Regulations for Urban Water Conservation and Management," and its urban environmental protection work has gradually been governed by law.

Great progress had also been made in urban infrastructure construction during the Seventh Five-Year-Plan period. A comparison between 1989 and 1985 shows that centralized urban heat supply area in the country increased more than six-fold, and pollution processing capacity increased nearly two-fold; garbage processing capacity, waste water processing capacity and the number of gas users more than doubled; and per-capita green area, per-capita water supply area, and garbage collection volume also increased to some extent. These increases have provided a material guarantee for improving urban environment in China.

Environmental Bureau Announces Waste Entry Controls

OW1204182591 Beijing XINHUA in English 1609 GMT 12 Apr 91

[Text] Beijing, April 12 (XINHUA)—The General Administration of Customs and the State Environmental Protection Bureau have jointly decided to strictly control the entry of harmful waste and garbage into the country.

According to the decision, the entry of 32 types of waste and garbage will be put under strict control: chlorine containing waste; waste pesticides, herbicides and germicides; waste containing beryllium, arsenic, selenium and cadmium and chemical compounds; waste containing copper and zinc compounds; asbestos waste; waste tar remnants; waste medicine and clinic waste; household garbage and remnants of burned household garbage; and industrial garbage, including construction garbage and sludge.

The decision bans the dumping and disposal of these 32 types of waste and garbage in China.

Special requests for the controlled waste and garbage as a source of energy and raw materials must be approved by the country's environmental protection departments.

Tibet Protects Natural Resources

OW2104021691 Beijing XINHUA in English 0149 GMT 21 Apr 91

["Natural Resources Protected in Tibet (Tibet's Today and Yesterday Backgrounder)"—XINHUA headline]

[Text] Beijing, April 21 (XINHUA)—Natural resources have been well protected during economic construction in Tibet since its peaceful liberation in 1951.

Tibet is rich in natural resources. It boasts 6 million hectares of forests and more than 70 varified minerals. All of this is quite favorable for economic construction of the region.

During Tibet's economic construction, the local government has always paid attention to the protection and administration of local natural resources and formulated rules on the protection of forests, the administration of

mineral resources and protection of wildlife. The governments at the prefecture and county levels have adopted relevant measures to effectively protect resources and strictly administer and rationally use them.

In forestry, tree felling and transport are strictly controlled. At the same time, trees are planted and hillsides are closed off in order to facilitate forestation and maintain a balance of water, soil and vegetation.

In addition, the scientific and technical personnel have strengthened their inspection and research on forest ecology. The prospecting, survey and study of mineral resources have been emphasized in the last few years.

The exploitation of mineral deposits should be approved by the government and carried out with the technical guidance of related departments. The management and transportation of mineral ores should be strictly examined and approved.

The small-scale exploitation of minerals by the local people has brought about good economic results under the planned economy and by relying on it the local people have prospered.

The various local governments have also formulated concrete measures to prohibit the hunting of wild animals based on regional provisions for wildlife protection. Tibet is now known as a natural wildlife paradise.

Tianjin Environmental Protection Work Conference Ends

SK2504082691 Tianjin TIANJIN RIBAO in Chinese 21 Mar p 1

[By Li Shuwen (2651 2885 2429): "Tianjin Municipality Defines Environmental Protection Tasks and Targets for the Eighth Five-Year Plan Period"]

[Text] A three-day municipal environmental protection work conference sponsored by the municipal government ended yesterday. The conference proposed efforts be made to effectively control the municipal environmental pollution during the Eighth Five-Year Plan period, alleviate the degree of damage to the ecology, noticeably improve the quality of the municipality's environment, maintain an advanced national level at the comprehensive environmental improvement assessment for cities, and lay a solid foundation for gradually realizing a well-rounded ecological cycle in the municipality, and building Tianjin into the cleanest and tidiest, the most beautiful and most peaceful modernized city in the whole country by the end of this century.

Jin Jianming, deputy director of the State Environmental Protection Bureau, attended and addressed the meeting.

At the conference, Deputy Mayor Li Zhendong announced the major tasks and targets for the municipal environmental protection work during the Eighth Five-Year Plan period. These included: 1. Guarantee that the urban water resources will not be polluted, do a good job in water and soil conservation on the upper reaches of the Luanhe diversion project and ameliorate pollution along the line, and enable the water quality of the Luanhe diversion project to become the best source of drinking water of major cities in the country; build a water purification plant in Dongjiao District with a daily capacity of 400,000 tons, raise the urban areas' water purification rate to 37.4 percent, specifically remedy the source of pollution caused by waste water, and raise the whole municipality's industrial water purification rate. 2. Further prevent and treat air pollution caused by smoke from burning coal, and raise the efficiency of the municipality's kilns and industrial boilers and the rate of disposal of industrial waste gas; make 85 percent of cars in the municipality attain the targeted level for automobile exhaust. 3. Strengthen management and improve the noise pollution caused by traffic, social sectors, and production equipment. 4. Strictly control the discharge of solid waste and make the industrial waste residue disposal rate reach more than 92 percent, the comprehensive utilization rate of waste residue reach more than 43 percent, the trash removal rate reach 100 percent and the safe- disposal rate jump to 98 percent. 5. Strengthen environmental management of township enterprises, strive to control the daily deterioration of rural ecological environment, raise the greening level of the urban areas, and enable the average per-capita green area to rise to 3.1 square meters, the urban tree coverage rate reach 15 percent and the rural forest coverage rate reach 10 percent.

Protection Zone for Black-Beaked Gulls in Liaoning

OW1504022891 Beijing XINHUA in English 0201 GMT 15 Apr 91

[Text] Beijing, April 15 (XINHUA)—Panjin city of northeast China's Liaoning Province recently approved a plan to set up a 5,600 hectare protection zone for black-beaked gulls on the Bohai seashore, the PEOPLE'S DAILY reported today.

According to the newspaper, there are only 2,000 black-beaked gulls left in the world.

In a joint inspection conducted last May, Chinese and foreign experts discovered several black-beaked gull propagation areas in the Hekou Nature Reserve at Shuangtaizi, Liaoning Province.

It is believed that black-beaked gulls can propagate only in China.

The new protection zone will be under the administration of the Hekou Nature Reserve, the newspaper reported.

REGIONAL AFFAIRS

Papua New Guinea, Australia at Odds Over Crop Disease

BK1504075891 Hong Kong AFP in English 0749 GMT 15 Apr 91

[Text] Port Moresby, April 15 (AFP)—A diplomatic row has flared between Papua New Guinea and Australia over a plant disease which authorities here fear may have been introduced from Australia.

Authorities have protested strongly over the issue, accusing Canberra of failing to notify them of the potato cyst nematode (PCN) which has been evident in the Australian State of Victoria since January.

PCN is considered a serious threat to crops such as tomatoes and eggplant as well as potatoes and is difficult to control when introduced to a new region.

Papua New Guinea imports large quantities of potato seedlings from Victoria for its farms in the highlands region.

Both Foreign Minister Sir Michael Somare and Agriculture Minister Tom Pais have expressed deep concern about what they say is a lack of cooperation by Australia.

They say Papua New Guinea's agriculture faces a major catastrophe if the disease has been introduced.

In a letter to Sir Michael on March 19, Mr. Pais complained of the lack of information from Australia, requesting that his concern be registered with the Australian High Commission (embassy).

He said he was "deeply concerned at the attitudes of our nearest neighbours" who had not advised of a recent outbreak of PCN in Victoria potato fields.

Australia, he said, had thus broken the agriculture quarantine protocol between the two countries.

He said he had asked the health minister to impose a temporary ban on imports of potatoes from Victoria for planting or processing.

A protest note delivered by Sir Michael to the high commission said his government was concerned over the lack of notification regarding the PCN outbreak "given the understanding and working arrangements between both countries with respect to cooperation in quarantine matters."

The failure to inform Port Moresby was "viewed as undermining the stated desire of the Australian Government to promote neighbourly co-operation" with Papua New Guinea.

The extent of damage—if any—caused by the disease to the three crops grown in Papua New Guinea is not known.

A spokesman for the Australian Government's Quarantine and Inspection Service confirmed Monday that notices had been issued that the disease had been found in Victoria, but was not aware what steps had been taken to notify Papua New Guinea.

(In Canberra, Australian Quarantine and Inspection Service Spokesman Don Cumming said Monday that Papua New Guinea had been informed of the PCN outbreak on February 28.

("We were aware of this outbreak from the end of January but it was restricted to a market garden rather than a commercial production area, and in any case there were no potatoes being harvested in the area at that time," he said.

("It was quarantined on February 6. We suspected it was an isolated outbreak and that proved to be the case.

("We notified trading partners including Papua New Guinea and, given that there were no exports from that area to Papua New Guinea, nor were there likely to be, we believe we have adequately discharged our obligations as far as notification is concerned.")

INDONESIA

Tough Penalty Against National Park Forest Poachers Planned

BK1604130191 Jakarta Domestic Service in Indonesian 1200 GMT 16 Apr 91

[Text] Speaking to reporters in Kupang, Forestry Minister Hasrul Harahap said the government will impose a 10-year jail term or 200-million-rupiah fine against those who are involved in environmental destruction at the Kerinci Sebelat National Park in Sumatera. The minister said strong action must be taken against those who destroy forests in view of the worsening condition of the Kerinci Sebelat National Park, which has a total area of about 1.48 million hectares and covers four provinces in Sumatera.

JAPAN

Keidanren Sets Guidelines for Environment Protection

OW2304095991 Tokyo KYODO in English 0923 GMT 23 Apr 91

[Text] Tokyo, April 23 KYODO—The powerful Federation of Economic Organizations (Keidanren) on Tuesday announced guidelines for member corporations encouraging them to actively contribute to protection of the global environment.

The 11-point program, named the Charter for Global Environment Protection, calls for member firms to

tackle environmental problems sincerely so as to harmonize with consumers and society and promote the sound growth of the Japanese economy.

Gaishi Hiraiwa, chairman of the federation, said the platform is based on his belief that the environmental problem could become a life or death question for enterprises in the future.

Emphasizing the need for enterprises to be fully aware of the importance of the problem, the program calls for member companies to establish a task force to tackle problems related to environmental protection under supervision of an executive official.

It also calls on them to offer active cooperation to cope with major disasters and destruction of the environment for which they themselves are not responsible.

The program appeals to enterprises to discharge their responsibilities for the protection of the environment on a global basis.

The member companies also are urged to take measures for protection of the environment when they build production facilities at home and overseas and to faithfully abide by environmental regulations set by state or local authorities.

The federation said the program was approved at an executive meeting Tuesday.

The environmental guidelines follow another set established last June for member companies involved in the government's official development aid projects overseas.

SOUTH KOREA

WHO-Banned Toxic Chemicals in Wide Use

SK1704010391 Seoul THE KOREA TIMES in English 17 Apr 91 p 3

[Text] About 30 toxic farm chemicals banned by the World Health Organization (WHO) have been widely used across the nation, polluting soil and water, the Citizens' Alliance for Consumer Protection said yesterday.

The chemicals, most of them pesticides, have caused potential hazards to the public health as some of them are supposed to cause cancer on accumulating in the human body.

In particular, a large amount of such chemicals have been recently used by an increasing number of golf courses, aggravating water pollution.

WHO has classified 82 farm chemicals as "extremely or highly" hazardous. Of them, 30 chemicals are in use in the nation, the consumer body said.

Of the 30 chemicals, Aldicarb, Captafol, Disulfoton and another six banned pesticides are classified as extremely hazardous and 21 others are regarded as highly hazardous.

The nine farm chemicals are currently banned in advanced countries such as the United States, Germany, the Netherlands, Norway, Sweden, and Canada, while a few other countries strictly regulate the production and sale of such chemicals.

The International Organization of Consumer Unions (IOCU) has launched a campaign to ban Paraquat, a widely used chemical in Korea, the consumer body said.

The pesticide, marketed under the Gramoxone brand name, poses a mounting possibility of having a lethal impact on the human body, it added.

The production volume of the banned chemicals amounted to 3,723 tons in Korea in 1989, accounting for 16 percent of the total pesticide production volume of 23,317 tons.

Also noteworthy is that the production volume of the highly toxic chemicals has increased year by year, the consumer body contended.

Although the production volume of pesticides increased by 31 percent for the four years from 1985, that of the extremely hazardous pesticides jumped by 88 percent and that of the highly hazardous pesticides rose by 52 percent.

The Citizens' Alliance called on authorities to ban the production and use of toxic chemicals which have the potential to damage the environment.

Opposition Leader Says Violaters Should Fund Cleanup

SK1604081691 Seoul YONHAP in English 0714 GMT 16 Apr 91

[Text] Seoul, April 16 (YONHAP)—The people who contaminate South Korea's rivers and lakes should pay to clean them up, opposition leader Kim Tae-chung said Tuesday.

Water was central to economic development and made many farmers rich, but its importance as drinking water had been ignored, the head of the New Democratic Union said.

Kim, at Paldang Dam in Kangwon Province with a party fact-finding team to look into water contamination, blamed the Korea Water Resources Corp. for neglecting the 15 million residents of Seoul, who he said wanted clean tap water to go with their better standard of living.

Water should be controlled properly in the dry season, when contamination is serious, he said.

Doosan Company Contaminates Source of Tap Water Again

SK2304013991 Seoul YONHAP in English 0126 GMT 23 Apr 91

[Text] Kumi, North Kyongsang Province, April 23 (YONHAP)—The company that recently contaminated the source of tap water for millions of people in South and North Kyongsang Provinces has done it again, alerting the residents relying on water from the Naktong River flowing through the two southeastern provinces.

Phenol from Doosan Electro-Materials Co. leaked in a tributary of the Naktong River on Monday, 13 days after the plant was allowed to resume operations. It was shut down for dumping large amounts of phenol into the tributary and poisoning the water supply.

Phenol can damage the nervous system and cause cancer and it becomes much more toxic when mixed with the chlorine used to purify tap water.

According to officials at the Taegu District Environment Administration, about two tons of the chemical flowed out of a ruptured pipeline where it joined a 60-ton phenol storage tank and one ton poured into the Okgye stream, a Naktong tributary, around Monday noon.

At 12:40 p.m. one ppm (part per million) of phenol was detected in Okgye stream, where all the waste from the Kumi Industrial Complex is discharged, and at 2:15 p.m. five ppm of phenol was found, the officials said.

After an investigation, company officials said a total of 1.3 tons of phenol leaked during the accident. One ton was retrieved but 300 kilograms seeped into the soil.

The company, affiliated with the Doosan Group, was ordered to halt operations again by the environment authority that evening until preventitive measures against phenol leakage are completed.

The accident was reported to the environment administration by a company official who was on routine patrol of the phenol facilities under a company regulation.

Company Chairman Resigns, Accepts Blame for Phenol Leak

SK2404025691 Seoul YONHAP in English 0219 GMT 24 Apr 91

[Text] Seoul, April 24 (YONHAP)—Doosan group chairman Pak Yong-kon resigned Wednesday, accepting blame for the leak of toxic phenol by a Doosan subsidiary into a river that supplies water to millions of people.

The group named Chong Su-chang as the new chairman. Chong, 71, a group elder, was chairman of the Oriental Brewery Co., a main line of the conglomerate, in 1969-1977 and president of the Korea Chamber of Commerce and Industry in 1977-1981.

Pak said he was sorry for the inconvenience and worry caused the people of Taegu City by the phenol leak and urged employees to come together to overcome the crisis and be born again under the new chairman.

Doosan Electro-Materials Co. was caught Tuesday leaking phenol into Naktong River. The same company was responsible for another phenol discharge late last month that contaminated tap water in Taegu.

Officials Ask Ouster of Minister, Mayor Over Pollution

SK2404073491 Seoul YONHAP in English 0647 GMT 24 Apr 91

[Text] Seoul, April 24 (YONHAP)—Environment Minister Ho Nam-hun and Taegu Mayor Yi Hae-pong look about to be fired as millions of outraged South Koreans grapple with the cancer-causing chemical phenol in their tap water for the second time in a month.

"In consideration of the public outrage over pollution of the water supply, I will ask President No Tae-u to have the officials concerned assume responsibility for the contamination," Kim Yong-sam, executive chairman of the ruling Democratic Liberal Party [DLP], told party officials Wednesday.

Kim is expected to propose the resignations of Ho and Yi in his regular meeting with No on Thursday afternoon, an aide to Kim said.

"Although the contamination was not deliberate, responsibility should be carried this time for it was done by the same company as before," a presidential aide said.

Doosan Electro-Materials Co., a subsidiary of the Doosan Group, on Monday released a large amount of phenol into the Naktong River, which is a source of tap water for millions of people in South and North Kyongsang Provinces. It was the second time: the company polluted the same river with the same chemical in late March.

Phenol, which can damage the nervous system and cause cancer, becomes more dangerous when combined with the chlorine used to purify tap water.

Meeting with Prime Minister No Chae-pong on Tuesday, some DLP lawmakers called for the resignations of the two government officials in connection with the incident, which started a nationwide war on pollution.

The main opposition party, the New Democratic Union headed by Kim Tae-chung, strongly demanded resignation of the cabinet, charging suspension of water supplies in Taegu twice showed the incompetence of the government.

In the National Assembly on Tuesday, both ruling and opposing camps urged not only dismissal of the officials but an official investigation by the National Assembly of the problem.

Environment Minister Resigns Over Contaminated Water

SK2504074791 Seoul YONHAP in English 0657 GMT 25 Apr 91

[Text] Seoul, April 25 (YONHAP)—Environment Minister Ho Nam-hun was fired Thursday and replaced by Kwon Ui-hyok, a former health and social affairs minister, in an uproar over contamination of the water supply in Taegu with toxic chemicals for the second time in a month.

Vice Environment Minister Han Su-saeng was also dismissed, and Han kap-su, president of the private Korea Industry Research Institute, took his place.

They were sacked because they were responsible for the second release of phenol into the Naktong River and contamination of tap water in the area by a Doosan group subsidiary, presidential spokesman Yi Su-chong said.

President No Tae-u told Prime Minister No Chae-pong in the morning he intended to fire them on the recommendation of presidential secretary-general Chong Hae-chang, he said.

Kwon, 68, is a native of Kimpo in Kyonggi Province and a graduate of Seoul National University's [SNU] Medical School. He was president of the prestigious state university and is a former education minister and health and social affairs minister.

Han, 57, born in Najoo in South Cholla Province, is a graduate of SNU's Liberal Arts and Sciences School and a former vice chairman of the ruling party's policy committee.

MALAYSIA

Commentary Hails Forest Management Systems

BK2304090391 Kuala Lumpur International Service in English 0800 GMT 23 Apr 91

[Station Commentary]

[Text] Primary Industries Minister Datuk Sri Dr. Lim Keng Yaik, in his world forestry day message, has rightfully called on other countries, especially those in the West, to increase the areas covered by their forests instead of criticizing the tropical countries for their forests policies and programs.

Certain environmental groups in the West have been constantly pointing an accusing finger, especially at Malaysia, for her logging practices and blaming her of forest depreciation to the detriment of the environment.

A look at the statistics compiled by the Food and Agriculture Organization, FAO, we are told that it is the industrialized nations that need to look seriously into their forests conservation policies [sentence as received]. These statistics revealed that the forests areas in these countries are way below 50 percent of their respective total land areas. The United Kingdom is a clear example. It has only 5.7 percent of its total land area covered by forests. It is nearly the same with other countries such as the Netherlands, Denmark, Australia, Belgium, and even the United States, though in varying degrees of percentages.

But take the case of Malaysia. It has a forest area of 18.5 million hectares, which is 56.3 percent of its total land area or 32.9 million hectares. And if we were to include the areas under rubber and oil palm, the forest area covers a hefty 69.4 percent of total land area. Where then is the justication in accusing Malaysia of indiscriminate logging practises and wanton destruction of its forests? Even the International Tropical Timber Organization, ITTO, on its recent visit to Malaysia, came to the conclusion that the country practices one of the best forests management systems in the world. This opinion was based on the study of the conservation measures taken in the Malaysian state of Sarawak, which is rich in timber and which has been the main target of the environmentalists' accusations and criticisms.

Forests conservation and environmental protection in general should be a collaborated effort on the part of every one. It is no use saying that preserving the tropical forests alone is more important for the protection of the global environment. Scientific studies have proved that medium-scale forests in temperate countries also have an important role to play in absorbing carbon dioxide and stabilizing climatic conditions. And as Dr. Lim pointed out, these countries have the benefit of stronger economies over the developing nations in leading the world in a universally planned reafforestration program.

Malaysia takes great pride in its forests which are among the oldest in the world. It will continue to adopt measures to preserve its forests on a maintainable basis through sound and carefully planned forests management policies and strategy.

TAIWAN

Acid Rain Problem Increasing

OW1504132791 Taipei CNA in English 0846 GMT 15 Apr 91

[Text] Taipei, April 15 (CNA)—Acid rain has become an acute problem in Taiwan. While the pH value of rain in eastern Taiwan remains normal, the problem is common around the rest of the island, environmental protection agencies reported.

In northern, northeastern, and central parts of the island, rain's average pH value is between 4.46 and 4.71, but the pH value in eastern Taiwan is a normal [word as received] 5.33, officials said.

With the acid being able to travel with air currents from 500 to 1,000 kilometers, emissions from factories and

vehicles in the western part of Taiwan are eventually expected to produce acid rain in all parts of Taiwan.

New Way To Conserve CFC Found

OW2404104791 Taipei CNA in English 0812 GMT 24 Apr 91

[Text] Taipei, April 24 (CNA)— The Republic of China efforts to conserve chlorofluorocarbon (CFC), an element widely used in industry but condemned as a killer of the atmosphere's ozone layer, are beginning to pay off.

The energy and resources laboratories (ERL) of the government financed Industrial Technology Research Institute announced Tuesday the successful development of a "multifunctional refrigerant recall system."

The device, ERL said, is capable of extracting coolant used in car air conditioners. Coolant is now released randomly into the air when conditioners are repaired or thrown away. This has led to a marked increase of CFC in the air and subsequent damage to the ozone layer. CFC is also used as spray-can propellants and industrial solvents.

Alerted to the damage being done to the ozone layer which protects humans from ultraviolet radiation, 37 countries have signed the 1987 Montreal protocol to reduce the use of CFC.

Dr. Yang Jih-chang, ERL director, said the new recall system will cut the use of CFC here. Taiwan consumes about one percent of the CFC produced in the world.

Yang warned, however, that CFC imports are rising at an annual rate of 20 percent, and that with the upgrading of living standards, CFC consumption might increase even faster in the future.

He noted that several local machinery manufacturers are keenly interested in cooperating to make the innovative, whose cost is between ½ and ⅔ that of similar products developed abroad. The local market is estimated at 300 million NT [new Taiwan] dollars (some $11 million).

Application for patent is already underway, Yang noted.

THAILAND

Polluters, Countermeasures Noted

91WN0337A Bangkok NAEO NA (LOK THURAKIT SUPPLEMENT) in Thai 21 Feb 91 p 14

[Unattributed report: "There Were 359 Factories Found To Be Causing Environmental Damage"]

[Text] Mr. Siwawong Changkhasiri, the deputy minister of industry, said that data from the Department of Industrial Works indicated that the types of factories in Bangkok and Samut Prakan which were causing environmental problems and hazards for the people included 201 factories involved in slaughtering animals, tanning hides, and producing canned food and animal feed and 158 factories involved in dyeing and printing cloth.

The Department of Industrial Works will survey these factories and divide them into three groups: the group causing problems which must be corrected urgently, the group whose conditions permit some time for corrections to be made, and the group with waste water treatment facilities which are able to prevent problems. The survey will take from this month until May.

Those factories in the group causing the greatest problems will be moved to 12 small industrial settlements laid out in a circle each with an area of 20 to 40 rai [a rai equals about 0.4 of an acre]. Industrial Settlements of Thailand (KNO) will arrange this. The moves are to have been completed by the end of 1992. There will be inducements for these factories to be moved such as tax incentives and low cost loans from the Office of Small Industry (SThO) and from involved parties in the private sector.

Study on Bangkok Children's Lead Levels

91WN0337B Bangkok DAO SIAM in Thai 26 Feb 91 pp 1, 8

[Unattributed report: "Bangkok Children Have Poison in Their Blood Because of Poison in the Air"]

[Text] High levels of lead have been found in children in Bangkok. This is the result of polluted air filled with dust and smoke from the exhausts of our heavy automobile traffic and automobiles which still generally burn gasoline.

This is the result of a study done by the Sirirat Hospital which involved testing the blood from the umbilical cords or 100 newborn infants and found a level of lead so high that it could affect the bodily and mental development of the infants. Among these infants there was one in which the level was high enough to affect the brain.

Even though the maximum acceptable level of lead in children is 25 micrograms per 100 milliliters and the level of lead found by the study in newborn infants in our cities averaged 18.5 micrograms per 100 milliliters, this did not indicate that the level of lead found in the children was at a safe level. These levels have tended to increase because of the harm done by air pollution every day.

There was also a study done to compare the level of lead in the blood of children living in Bangkok with that of children living in Kanchanaburi Province. Children aged six to eight were tested, and only a small difference in the levels of lead were found. The level of lead in the blood of children in Bangkok averaged 17 to 19 micrograms per 100 milliliters, and in Kanchanaburi the level of lead averaged 14 micrograms per 100 milliliters. But among children aged nine to 13 it was found that for those living

in Bangkok the level of lead averaged 19 to 26 micrograms per 100 milliliters while for those living in Kanchanaburi it averaged 14 micrograms per 100 milliliters. In this study the difference was clear.

These studies indicate that if standards are not adopted urgently to control this pollution, children's health problems resulting from lead in their blood will increase and health care costs will increase also because the presence of lead in the blood of children under six will affect the development of the brain and body and make it slower than normal. If the level reaches 30 micrograms per 100 milliliters, there will be brain damage and the child will be frail and unable to learn well.

Kanchanaburi Residents Protest Toxic Waste Dumping

BK1604051591 Bangkok THE NATION in English 16 Apr 91 p A4

[Text] Residents of Kanchanaburi have stepped up their protests against the dumping of toxic waste from the Khlong Toei fire in the province by erecting dozens of banners, distributing thousands of letters and calling on chemical experts to attend a special seminar.

The banners and letters call for a halt to the dumping of the waste in the province's watershed area, and point out the responsibility of the government to the environment and the people's health.

Thousands of open letters calling on the public to join in the protests were distributed last week to Kanchanaburi residents. The letters were signed by 30 local organizations including Kanchanaburi Women's Group, Nature and Environment for the Future Club, Kasetsat University Alumni, and residents of Wang Dong and other villages.

"We also plan to hold a seminar and invite chemicals experts to discuss the problem," said Phinan Chotirotserani, a member of Kanchanaburi Women's Group.

"Since the waste began arriving in our province on March 19, we have yet to receive any solid guarantee of our future. Like people in other provinces, I think we have a right to live in a good environment."

On March 23 the National Peacekeeping Council (NPKC) tried to alleviate people's doubts about the dumping by sending representatives including high-ranking military officials and chemical experts from military agencies to the province. But they failed to win the trust of the villagers because too many questions remained unanswered.

Protestors said they wanted to know why the waste has to be buried in Kanchanaburi if it is not dangerous, why an ambulance (from King Rama VI Military Hospital in Bangkok) and a fire engine have to follow each convoy carrying the waste, why the truck drivers wear masks, and why the waste is transported secretly and very late at night. Local residents say they are never informed of the convoys.

Villagers also claimed that the burial site is the watershed area of Lam Tapoen Creek which flows into the Khwae Yai River. The water in the river is spent into the Mae Klong River, which is a main lifeline of the western part of the country. Some water from the Mae Klong River is diverted to produce tap water suplies for Bangkok.

The waste dump is also only six kilometres away from Wang Dong and Tha Jaeng villages and not 30 kms as the villagers claimed they were told by NPKC representatives. Not far from the dump are thousands of rai of sugar cane and tapioca plantations.

Dumping in Kanchanaburi began only two days after Ratchaburi residents protested against the plan to dump the chemical wastes from Khlong Toei in their province.

An open letter queried: "Does that mean Kanchanaburi people are stupid enough to accept the waste without any complaints?"

The villagers say that their protests have to be carefully planned because martial law bans political gatherings of more than four people, said Phinan.

The protest started late last month with several banners appearing in front of shophouses and public places after the NPKC ordered hazardous waste to be moved from Khlong Toei to a military zone in the province.

But banners in public places were removed by military officials who claimed that the protests would destroy the province's image as a popular "tourist attraction", said Phinan.

However, more residents ahve agreed to put up protest banners in front of their houses as they are becoming more aware of the impact of the toxic waste on their and their children's health. Up to 50 banners are spread around the town now.

One open letter has raised criticism that the calls for clarification of the types and the impacts of the toxic chemicals buried in the province was being ignored.

"We insist that the waste be dug up for testing by neutral chemical experts to see if they are really inactive. Moreover, the burial has to be carried out more carefully to ensure that the toxic waste will not leak and contaminate natural water soures and soil," said Phinan.

Waste, Deforestation Threatens Songkhla Lake

BK2204015191 Bangkok THE NATION in English 22 Apr 91 p A3

[By Prayut Siwayawirot]

[Text] Deforestation, the uncontrolled release of factory waste water and improper fishing methods are imposing

a major environmental threat to Songkhla Lake, once considered one of the most abundant in Southeast Asia.

The diminishing number of trees around the 600,000-rai expanse of water has allowed mud to accumulate in many parts of the lake and increased its salinity, environmentalists said.

The biggest threat has come from more than 100 factories which release a huge amount of waste water into the lake without proper control by authorities, said Nikhom Pusakhunsuk, leader of the Lae Tai environment protection project.

He told THE NATION that waste water had killed fish and was blamed partly for the extinction of more than 10 of some 700 marine species in the lake.

More than 150,000 families have to rely on the lake for their daily living. About 23,400 families of fishermen live around the lake which covers parts of Songkhla and Phattalung.

Nikhom said many fishermen had resorted to using electric charges to catch fish, adding to the threats against marine life already endangered by the fast-growing fishing communities around the lake.

"The ecological system of Songkhla Lake has been greatly affected because of the rapidly decreasing numbers of marine creatures," he said.

Nikhom said his Lae Tai project was launched in order to encourage "everybody concerned with the Songkhla Lake" to join in a campaign to preserve it.

He added that there were attempts to discourage shrimp farming around the lake because large amounts of damaging waste water had been released from the shrimp farms.

Nikhom said an experiment would be carried out to find out whether the Songkhla Lake could be an effective breeding ground for shrimp.

A source in the National Environment Board admitted there were genuine concerns about possible serious environmental damage to the Songkhla Lake if no immediate action was taken.

"We only talk about waste water from industrial factories [sentence as received]. If waste water from communities is taken into consideration, the prospects will be considered even bleaker," the source said.

Phon Misuwan, a Songkhla villager who breeds fish in the lake, accused factory owners of violating waste water control rules and authorities of turning a blind eye to the practice.

"If nothing is done, I'm sure many people will suffer in the near future," Phon said.

Government Tries To Hold Off Wildlife Sanctions

BK2004055791 Bangkok THE NATION in English 20 Apr 91 pp A1-A2

[By Nanthiya Tangwisuttichit, Aphisak Thanasetthakon, and Sorrayut Suthatsanachinda]

[Text] The government has appealed to HRH Prince Philip, president of the Worldwide Fund [WWF] for Nature, for his help in delaying the international ban on exports of wildlife products from Thailand which could cost the country hundreds of millions of baht.

A letter, sent by the Office of the Prime Minister [PM] on behalf of Premier Anan Panyarachun and the people of Thailand and signed by PM's Office Minister Michai Wirawaithaya, asked for the ban by the Convention on International Trade in Endangered Species (CITES) to be delayed as Thailand was taking action to protect wildlife.

The letter said the government is presently enacting legislation and initiating anti-wildlife trading actions to rectify the previous dismal lack of resolve on this issue in Thailand. It promised to report detailed results of the efforts to the WWF and CITES within three months.

"It cannot be confirmed that the amendments to wildlife laws will be approved within the next three months. But this is to show to the WWF that at least we are doing something to improve the situation," said Michai, a former trustee of WWF.

The letter is the first official response from the Thai Government to CITES' decision to instruct its 110 signatory countries to impose sanctions on trade and tourism in Thailand. The decision was made during a meeting of CITES standing committee which ended on April 12 in Lausanne, Switzerland.

But Bunloet Angsirichinda, chief of the Law Enforcement Subdivision of the Royal Forest Department's Wildlife Conservation Division, said the letter may not have much impact because the meeting was over and the decision was made. Bunloet is also a management authority of CITES in Thailand.

"The only thing that perhaps we can do is to ask for a delay in the notification of the sanctions which CITES will send to its 110 member parties," Bunloet said.

Agriculture Minister Dr. Anat Aphaphirom, however, said the CITES' notification is only a request for the 110 countries to ban trade with Thailand—it is not an order. Therefore some countries may not agree to the sanctions because they want to do business.

"CITES does not authorize the prohibition of trade. So it depends on the consideration of each country. What's important is everybody wants money because it is a kind of business," he said.

Two weeks before the CITES' meeting, the organization sent a letter to Thailand to invite representatives to

explain 96 accusations it had made of Thailand being the "world's largest illegal wildlife supermarket," said Bunloet.

Some of the charges included blaming Thailand for its lack of laws to protect non-Thai wildlife species. The country was also accused of being a centre for the transport of wildlife from their original habitat to other countries.

The allegation also referred to the government's ignorance of CITES' request to ban the import of cheetahs for Safari World, a private zoo in Bangkok.

"But nobody was sent to the meeting. Who would have wanted to be attacked with accusations of which 70 percent are true?" said the wildlife officer.

What the Royal Forest Department did instead was to send CITES a written explanation to counter the accusations. Some were acceptable, but CITES' committee upheld WWF's suggestion of sanctions, said Bunloet.

"They are serious this time, probably because we have asked for the ban to be delayed many times in the last five years. Moreover, we have never fulfilled our promise of new regulations to control the illegal wildlife trade situation," said Bunloet.

Two years ago, Thailand was condemned by the WWF as one of four countries which had done very little to stop illegal wildlife trade. The other three countries were Indonesia, Argentina and Spain.

The wildlife officer added that many exporters of wildlife products had complained to him of the damage which would be caused to their business if the ban is implemented. Last year, according to official figures, Thailand exported wildlife carcasses worth Bt [baht] 300 million, of which Bt142 million was from reptile hides and Bt77 million was from exports of genuine leather products.

The Royal Forest Department has been trying to propose amendment to the 1960 Wildlife Conservation and Protection Act to include non-Thai wildlife species in the protection list for five years. But the amendment has never been considered in the Parliament because of various political situations.

However because of the increased pressure from international conservation organizations, the amendment is expected to be approved by the National Assembly soon.

Bunloet said to complete the CITES agreement of wild flora and fauna conservation, the Fisheries and the Agriculture departments shoulds also update their regulations on the protection of fish and plants.

VIETNAM

Deforestation in Tay Nguyen Decried

91WN0383A Hanoi NHAN DAN in Vietnamese 28 Jan 91 p 3

[Article, written in Pleiku on 4 January 1991, by Le Dien and Giang Nguyen Thai: "Tay Nguyen (Central Highlands)—Alarming Pace of Forest Destruction"]

[Text] The forests in the Central Highlands are really beautiful. Whoever comes here most likely will praise their beauty. In the last 15 years, even though 800,000 hectares have been transformed into new land, there still remain about 2.6 million hectares of forest land.

This large area of forests is being a delicious prey for people to swarm around, to cling to, and to tear into pieces so as to compete for their share. It is getting to the point that many state forest directors would pay little attention to afforestation and instead would stay in cities and municipalities and devote most of their time and energy to dealing in timber. Ever since we adopted the policy of encouraging individuals to invest capital in business, the installations that process and deal in timber have been growing like wild mushrooms. According to incomplete statistics, there are 300 such installations in Dac Lac Province alone. But strangely the processing facilities of some state forests do not operate to their full capacity. The reason is felling trees and selling timber would be quicker and bring in more profits.

The population in the Central Highlands has increased extremely quickly. According to the 1906 statistics issued by the French, there were then only 240,000 people, almost all being members of ethnic minorities. According to a 1989 investigation, the population had increased to more than 2.4 million. After the day of liberation, this population has doubled. This population increase has always kept the Central Highlands in a state of instability and has affected the environment. Not only are the local ethnic people destroying the forests, but people coming to work in the new economic zones and members of ethnic groups emigrating from the northern border areas on their own initiative, as well as people from other provinces, have been cutting timber as a seasonal activity.

Destroying the forests most quickly and extensively are the unions, such as the unions of rubber and coffee enterprises, and state farms and forests. These state-operated production installations are more numerous here than anywhere else in the country. In Dac Lac Province alone there are more than 10 unions of all kinds and nearly 100 state forests and state farms, which together account for 85 percent of all the land in the province.

It is true that nowadays people do not use axes and machetes but instead power saws, tractors with chains, and heavy trucks to extract timber from forests. The pace of forest destruction is truly alarming! A large tree is

felled by a quick cutting with a power saw and, as it topples over, smashes and destroys dozens of smaller trees. Then a tractor with chains comes in, runs over lots of other trees, and hauls away the precious tree trunk. One tree is felled, a thousand others are destroyed. There also is a "field" processing installation right in the forest. After the tops and branches of the felled trees are cut from the trunks, the logs that come from the latter in specified sizes are quickly hauled away in trucks. The smaller pieces from the limbs and tops remain in the forest to be exposed to the sun and rains. Since the forest is far away, nobody will come to take these pieces. The entire Central Highlands, with its precious wood treasure, so far does not have a single modern plant to process tree branches and tops. The same is true with coffee, which still is exported in its raw form, because of a lack of a modern processing plant. One wonders where the money from lumber and coffee exports goes that has prevented them from importing modern plants and from building additional asphalted roads leading to the far-away former resistance zones.

For those who pass by Route 14 at Bridge 110, where lies the boundary between Dac Lac and Gia Lai-Kontum Provinces, and see thousands of cubic meters of wasted timber lying exposed to rains and the sun, with many trees already rotten, they certainly feel pain caused by this heart-rending scene of waste. We had a conversation with some local people, who told us that the timber belonged to Processing Enterprise No 19 and was left there because it was of poor quality. Even if it were cut into lumber, it would be hard to sell here.

"Why didn't they give it to the people, instead of letting it rot and be destroyed by termites?"

"The timber has existed since the time of state subsidies," a man wearing a thin mustache and appearing well-informed said. "It is really a tremendous waste. But it's nothing compared to forest fires, which destroy more precious wood like giang huong (Pterocarpus pedatus), cam lai, and gu mat (Sindora cochinchinensis)."

The day we came to work with the Communications and Transportation Service, the deputy directors there had this complaint: "The roads in the Central Highlands used to be widely considered good ones, but in the last few years they have quickly deteriorated. You probably know about the rainy season in the Central Highlands. And yet trucks loaded with timber and weighing 40, 50 tons run around the clock. How can any road remain good? And no amount of repair can keep up with them." According to incomplete statistics, 800,000 cubic meters of timber were cut in the Central Highlands each year, or about 12 million cubic meters in the last 15 years. That surely was beyond the weight limits the roads could bear.

Some cadres in the electric power sector expressed their worries: "If forests continue to be destroyed like this, the water level at our hydroelectric power plants will go down to a fatal low, meaning our equipment cannot operate. The Tri An and Da Nhim hydroelectric power plants have had that problem."

The greatest danger is the destruction of the environment. As they look at the country, the people refer to this saying:

"Who is responsible for the destruction that condemns our forests to death, And makes our deep streams dry, and the flocks of birds fly away?"

If we compare an ecosystem with a symphony orchestra, forests are the conductor. The loss of forests means the losses of land, water, and precious birds and animals; floods that occur at lightning speed; more severe droughts; and winds that blow more strongly than ever.

At present, the area of bare land and treeless hills in the Central Highlands totals 2.3 million hectares. Every year rains, winds, and the sun carry away hundreds of millions of tons of rich soil and make the layer of topsoil needed for crop cultivation thinner by one-two cm. Seventy percent of the area of red basalt soil, which is the ideal soil for rubber, coffee, and tea, have been deteriorating.

Science points out that in the humid tropical region, forest canopies must ensure 40-50 percent of cover for high plateaus, 60-75 percent for mountainous areas. But for the time being, this cover for the Central Highland high plateaus is down to 25-30 percent, an alarming level, and for the mountainous areas here, only 40-50 percent. The armor that is this cover has been being punctured and badly torn. The Central Highlands has begun its desertification.

That was the reason why the Central Highlands, which in the past had never had any fatal floods, had a flood that killed tens of people. The wife of the chairman of A Dun Pa District People's Committee was drowned in the flood as she went to work in the field. People worried about this narrow land lying along the coast in this central part of the country. In the last few years a number of provinces here suffered from unprecedentedly serious floods. The Central Highlands and the central part both lie in the country's bowels. They must work closely with each other and help each other in order to develop their economy. Our compatriots in the central part have said: "If the Central Highlands continues to destroy forests, we may be pushed to the sea."

Then where did the Forestry and Forest Control Service go? What did it do?

A friend, who also comes from my native village and works for the newspaper in Gia Lai-Kon Tum Province, did not give a direct answer to those questions but instead told the following story:

"Our newspaper has a new reporter. Recently he wrote for it an article which criticized the forestry sector. He did not sign the article with his true name but assumed the pen name of Lam Dai Kinh. I asked him, 'Why did you use a name that sounds like you are a Chinese?' He

answered: 'The three words mean being very afraid of the forestry sector.'" My colleague then lowered his voice as he continued the story: "Maybe what he told me was not the real reason. He probably was afraid that if he used his true name, he would be a target for reprisals."

That article, which appeared in the 19 December 1990 issue of the Gia Lai-Kon Tum newspaper, was praised by the public. We excerpt some passages from it as follows:

"In the last few years, at all meetings of the Provincial People's Council some people reportedly questioned about the deterioration of the forestry sector, but members of the council usually heard reports on the sector's achievements, such as collecting billions of dong of tax money to take care of forests, huge sums of money coming from fines, and so on, and very seldom on its shortcomings. Eventually the shortcoming ball always is in somebody else's court, where it is made to land in a pretty artistic manner!"

"But, as compared to the 1981-1985 period, the present timber production has doubled and tripled, which of course means that the area of forests being destroyed has greatly increased. The sums leaking out of tax money collected to take care of forests and 'bonuses' and secretly going into the personal pockets of a number of people have also quickly increased. The area of afforestation meanwhile has been reduced four-five times (each year afforestation would take place in only 500-600 hectares). One can clearly see the good and the bad by making a comparison."

As we listened to the stories about some state forest directors, we found that they behaved like tigers (kings of forests). We of the news media should continue to sound the alarm and to call for saving our forests. Let us mention some typical cases:

In Cu Giut District, although the state of its forests allows an annual cutting of only 3,000 cubic meters of timber, in the first nine months of 1990 the total quantity of timber extracted by both the province and the district amounted to nearly 10,000 cubic meters, or three times the capacity of its forests would allow. Lying to the superior authorities and public opinion deserves disciplinary action. On paper they say cutting "all-purpose timber" but they actually cut mainly precious timber and top-quality timber. Not only Cu Giut but also a number of other districts used that kind of trick. In the forests there are tens of sawing machines-equipped stations for cutting precious timber and "field mobile processing" shops run by state-operated units. These units worked with private people for cutting timber without authorization. Although the district had hired the province's Union of Agricultural, Forestry, and Industrial Enterprises No. 1 to cut timber, it still tried to persuade the province to let it open a shop to saw and process timber. After having obtained all the legal documents it needed, the district dealt with private business people outside of the province and invited them to come and set up wood-processing shops and to sell illegally produced lumber. Each month these private shops had to pay the district 1 million dong. Nobody would know how much of these monthly payments went into the district's budget and how much into private people's pockets.

In Cu M'ga District, its forests have the capacity of allowing a yearly cutting of only 3,000 cubic meters of timber. The province, however, was very generous and set the goal of cutting more than 7,800 cubic meters. Even more generous was the district, which assigned units and individuals to cut an even larger quantity of timber in order to "create more capital." Also in the first nine months of last year, the timber that was cut amounted to more than 11,000 cubic meters, or nearly four times as much as the quantity allowed.

The border district of Dac Min deliberately cut trees anywhere, even in the forests that are inside key national defense zones.

Since there are many reasons behind this extremely serious and wasteful destruction of forests, we need to investigate and study the situation in an objective and scientific manner so as to adopt appropriate policies and measures to effectively put an end to it.

On the basis of what we saw and heard, we could not understand why some provinces in the Central Highlands did not strictly assign goals on the basis of the capacity of forests and the conditions in individual districts but instead authorized the cutting of timber in an extremely easy and generous manner. Since almost all districts were incapable of cutting trees and processing timber, they had to hire private people or to cooperate with the forces outside their province. This was a big loophole that allowed our forest resources to be indiscriminately destroyed.

According to regulations only the timber that bears the forest control hammer seal can be transported. We also could not understand why the Ministry of Forestry was too easy and authorized the use by each and every state forest a hammer to make the seal onto the timber to be transported. This was also a loophole for unconscientious and irresponsible state forest directors to commit improprieties.

Our country as a whole has only a few forests left in the Central Highlands. They are the country's roof. If these forests are destroyed, harmful effects will happen not only to this locality but also to the entire central part and eastern Nam Bo. We hope that ecologists would come here to study and to help. We also earnestly request the Council of Ministers and Ministry of Forestry to immediately send a group of cadres over to check and study the situation, to look for reasons, and to suggest timely policies and measures aimed at putting an immediate end to forest destruction, saving our forests, and preventing them from becoming deserts.

REGIONAL AFFAIRS

CSFR's Meciar Reviews Talks With Hungary on Hydroelectric Station

LD2004191591 Bratislava Domestic Service in Slovak 1630 GMT 20 Apr 91

[Interview with Slovak Prime Minister Vladimir Meciar by correspondent Ludmila Bulakova in Bratislava on 20 April—recorded]

[Text] A working meeting of some representatives of the government cabinet and representatives of environmentalists, as well as experts on building hydroelectric power stations, took place at the office of the government in Bratislava today. The aim of their talks was to clarify stances before the talks about the Gabcikovo-Nagymaros Hydroelectric Power Station that are to be held in Hungary. Ludmila Bulakova asked Premier Vladimir Meciar to answer some topical questions.

[Bulakova] You are going to travel to Hungary tomorrow to hold talks there with the Hungarian side about the future fate of the Danube hydroelectric power system. I am aware that there are nine alternative proposals on what to do about this hydroelectric system. Which one did you decide to stand for?

[Meciar] In Budapest I am going to represent both the federal government and the government of the Slovak Republic. This means that we are going to Hungary at a point when the Hungarian side must, for the first time, state publicly what the reasons are—factually, legally, and technologically—to support their course of action to date, which is in unilateral breach of the agreement. We have to tell the Hungarian side what their actions have cost us so far. In addition to the work done by the leaders and plenary sessions, work will be done also in groups that will work on individual arguments more in detail, where an acceptable way out will be sought.

[Bulakova] Nevertheless, this week the Hungarian parliament asked the government to push for the ending of further construction work during its talks with the CSFR, with its representatives.

[Meciar] It is possible to end it also by completing it. Of course, they mean something else: to freeze it at the present state, halt works, and cancel the agreement. Such a cancellation of the agreement is not possible without the consent of our delegation, and I did not receive such an approval to cancel the agreement.

The Hungarian side has been promising to forward to us the reasons it had for its unequivocal measures in halting the construction work for ecological reasons. Its documents were assessed by our experts, who produced reports on them which I read myself. These documents have a number of mistakes, a number of formal mistakes, but, for instance, as we do not know who prepared them, we cannot assess how objective they are. Calculations which could back the arguments with objective information are missing—these documents give the impression of popular literature.

That is why we are convinced that if the Hungarian side wants to be successful in defending its stance, it must put forward new arguments, of greater weight, which were not known when the construction of the hydroelectric power station was embarked upon. When the hydroelectric power station was already under construction, it was clear what we had embarked upon, what its technological, ecological, and other influences would be. Therefore the only thing we can discuss now is the question of moderating them.

CSFR's Meciar on Danube Barrage Issues

LD2204203691 Budapest Domestic Service in Hungarian 1630 GMT 22 Apr 91

[Interview with Slovak Premier Vladimir Meciar by Budapest Radio reporter Peter Nyaradi in Budapest on 22 April—recorded; Meciar speaks in Slovak with superimposed Hungarian translation]

[Excerpts] [Announcer] My colleague Peter Nyaradi has been following events [on Danube water barrage negotiations] all day and he has been able to obtain an interview with the head of the visiting delegation, the Slovak head of government, Vladimir Meciar. [passage omitted]

[Meciar] The Hungarians proposed the cancellation of the original 1977 treaty and the signing of a new agreement. On behalf of the Czech and Slovak governments' delegation, I have pointed out that the original treaty is valid and it is impossible to abrogate it or withdraw from it unilaterally. Then I warned of the consequences that have come about under the impact of Hungarian behavior so far, and the extent of the damage all this has caused to Czechoslovakia. But, before everything, I called attention to the fact that to this day we have not heard a single contrite Hungarian justification which would explain why they have decided the way they have done. These reasons have remained in the mist to us so far. We have called to attention the fact that the views of the experts of the two countries are, of necessity, at variance with each other, and therefore we propose the creation of joint working groups, and also the setting up of international committees; we should also place the foreign experts in the joint working groups.

At the same time, we also propose linking the time of the investigations by the government delegations to a deadline. It is well known just how bad our experiences are regarding negotiations without a fixed time limit. Therefore we have not accepted the proposals relating to negotiations with unlimited time. In the same vein, we also propose the introduction of a deadline in the activity of the working groups as well.

We have not accepted any form of the Hungarian proposal that we should unilaterally stop work on building the Gabcikovo power station, as we thought it

unfounded. Such a decision would seriously harm the interests and safety of the Czechoslovak party and the people living beside the Danube.

[Announcer] My colleague's next question was what the Hungarian side answered to this Slovak rejection.

[Meciar] There are answers, but we are still waiting for the listing of specific facts. We want to know the reason for the decision. We already know the aim, but we do not know the reason.

[Announcer] The next question was what would be the furthest they could reach during the talks.

[Meciar] First of all we (? wish to) learn what made the Hungarian party take a number of one-sided steps since 1989. Why do they insist on the cancellation of the agreement, and how do they imagine will be the solution of the other problems which will be created in this way, for example, the navigability of the Rhein-Main-Danube Canal? This is our joint duty. If we do not solve this, then how do they envisage it? What further expenses can be expected then? What kind of technical means do they wish to use? Are there any such ways being prepared? As regards environmental protection, well, that does not only mean damage but advantages, too. What is the proportion of the damage and the advantages? What means are there to lessen the damage to the minimum? So far nobody has held talks about this from the two parties [sentence as received]. Both sides have totally opposite views on this. We know that the damage can be reduced.

As regards the economic side of the issue, there are great differences in that, too. Czechoslovakia has completed 90 percent of the investment. There is hardly more than 40 percent on the Hungarian side. If we add the losses which derive from the termination of the works, and which mean a sum of several billion [as heard] every year, or that the already expected and planned energy does not arrive, that the power station will not be operated at peak capacity, or that the Hungarian enterprises have terminated the works in Slovakia, well, if we add up all this, the result is many billions. Our responsibility is, therefore, that here we have to decide on large sums of billions and it is exceptionally difficult to remove the obstacles which derive from the difference in the scientists' point of view. We demanded that the Hungarian party differentiate between the environmental damage which arises and has arisen independently of the water barrage so far, and those which are caused by the power station. We warned them that all their arguments which they produced already existed before, at the time of the preparations, and that both sides knew them, only their emphasis was different. To the present day, they have not submitted to us any new facts at all. That is why the talks can be called complicated, and I do not think they will end in agreement today. It just remains for us to tell each other our opinion, and the assessment of the pros and the cons will be postponed. We have not mentioned the sum of the damage so far, but we have warned that it would be a larger amount than the sum Hungary has paid to Austria so far.

[Announcer] Nyaradi asked when the Czechoslovak party thinks they would reach total solution of the issue.

[Meciar] I am also speaking on behalf of the federal government. I suggested that the talks should be completed by August and the committees should finish work by July. Everything is ready for this: the observation system, the level of knowledge, computer background, scientific collectives, teams which have been dealing with this for years. Even the representatives of the international organizations which joined at the beginning considered that three to four months would be enough for processing the data from the moment when they first start dealing with the issue. That is, this cannot be the reason for further playing for time. Any further loss of time increases our losses, this is why I warned that in such a case we will reserve the right to take unilateral steps which protect our interests and comply with international law. I must add that the Hungarians fully acknowledged the validity of the original agreement.

[Nyaradi] Considering that there remains hardly any room for negotiation, if it has to give way, I wonder how far the Slovak side is willing to go?

[Meciar] First of all, our possibilities for maneuver are determined by the agreement adopted by the governments of the two sides. This is binding on both sides. I have precisely cut-out possibilities for what I can do and cannot do. Nothing can happen that might harm the interests of the CSFR and we do not want to do anything that would harm the interests of Hungarian citizens. We want to reach a sober agreement, one worthy of both sides. There is a possibility for this, even with the interests being taken into consideration and, what is more, even if the power plant is built and we reduce the damage to the minimum.

[Announcer] Peter Nyaradi finally asked Slovak Head of Government Meciar whether, apart from the economic issues, they have managed to the full extent to clarify the political aspects of the issue.

[Meciar] Well, in this regard what we said was that we understand the development that has taken place in Hungary. We know that since about 1984 it was always in the matter of Gabcikovo-Nagymaros that the Hungarian opposition achieved unity. It was the symbol of the previous regime's mania for giant projects. This water barrage was an outstanding political [word indistinct] in the period before the elections, also as one of the best arguments of the opposition. We know that since then the opposition has won and that those who took part in the demonstrations then are today influential personalities, and that now they are racking their brains what to do with this whole business.

BULGARIA

Chernobyl-Related Trial of Stoichkov, Shindarov Opens

AU1404172291 Sofia BTA in English 1652 GMT 14 Apr 91

["Trial: In the Shadow of Chernobyl"—BTA headline]

[Text] Sofia, April 14 (BTA)—The trial of Grigor Stoichkov and Lyubomir Shindarov—two high ranking state officials of the former regime involved in yet another scandalous affair of the top crust, Chernobyl, is to open tomorrow morning.

It is stated in the indictment that in the period from April 26 1988 to June 1989 Mr. Grigor Stoichkov, then deputy chairman of the Council of Ministers and chairman of the Standing Governmental Committee for Combating Natural Calamities and Heavy Industrial Accidents, and Mr. Lyubomir Shindarov, first deputy minister of public health and chief sanitary inspector, acted in complicity in contravention of the rules for radiation protection, although they realized that in consequence the citizens of Bulgaria may be caused physical injury or death. Mr. Stoichkov will be also hold responsible for inflicting damages to the state exceeding 2.6 million leva ensuing from his breaking the radiation protection rules through "carelessness amounting to criminal overconfidence." For these acts Mr. Shindarov is liable to a penalty of three and Mr. Stoichkov to five years of imprisonment.

The panel will be chaired by Mr. Bozhidar Suknarov, one of the most experienced judges of the Supreme Court. He will be assisted by two representatives of the youngest generation at the Supreme Court, Ms. Boyka Popova and Ms. Eliyana Karagyozova. Ms. Milka Boyadzhieva, a prosecutor of long service at the Office of the Prosecutor General, will act in her capacity of public prosecutor. According to her colleagues she is an experienced, conscientious and unbiased professional. Mr. Enyo Komitov and Mr. Georgi Vurbanov, both ex-prosecutors, are the counsel for the defense. The witnesses summoned are 46, but there are a few more (maybe three or four) who have been served with writs at the request of the defense.

According to some sources the hearing may be postponed for a later date, in most probability because of Mr. Stoichkov's health. According to well-informed sources outside the law court and the Prosecutor's Office, the defendant has recently suffered a hemorrhage of the brain. If this fact did not prevent him from appearing in court to testify at the Zhivkov-Balev trial a few days ago, now it can excuse him from not appearing in court as a defendant.

Stoichkov Pleads Not Guilty at Chernobyl Trial

AU1604203791 Sofia BTA in English 1937 GMT 16 Apr 91

[Text] Sofia, April 16 (BTA)—As expected, at today's hearing the defendant Grigor Stoichkov pleaded not guilty and denied personal responsibility for the higher health hazards to which the population of Bulgaria had been exposed after the Chernobyl disaster. He said that immediately after the catastrophe adequate measures had been taken, the radiation load not only did not exceed the permissible levels but was even far below them, [and] there was no information blackout, just lack of experience and preparedness.

According to the former chairman of the Governmental Commission on the Management of Natural Disasters and Large-Scale Industrial Accidents, this trial marks the end of a long campaign against him. He believes it was provoked by biased publications, TV and radio programs and by manipulations of public opinion. "I was all but declared culprit for the catastrophe," the defendant complained and added that Bulgaria is the only place where such a trial has been staged.

Mr. Stoichkov ascribed the charges and the "slander" against him to ignorance of the truth about those troubled days and to the present "black-out aimed at creating suspicion and tension." He asked why the Prosecutor's Office ignores disinformation [as received] and spreads disinformation itself.

The defendant dismissed the charges that he had assumed people could die or suffer bodily harm. "These are monstrous charges, totally inconsistent to my character and style," he exclaimed.

He found it scandalous that the indictment failed to indicate clearly and unequivocally the truth expressed at international conferences and symposia: "The Bulgarian population suffered no health and biological effects of the trans-boundary pollution." The presentation and the interpretation of the rights and obligations of the commission he had been in charge of was defined as "gross manipulation by the prosecution." The defendant said that the commission was responsible only for calamities inside the country and its regulations made no mention of words like "radiation" and "becquerel."

He confessed that he got familiar with the terms "radiation" and "becquerel" only after the accident and said he had asked for expert opinion on the matter. Recalling the measures taken in the first days after the accident he made it clear that they had been limited to measurements. He had personally insisted on monitoring the open water sources.

The defendant said that his commission had nothing to do with the problems of trans-boundary pollution which were within the competence of the Committee for the Peaceful Uses of Atomic Energy and Civil Defense.

Unexpectedly, the ball landed in the BTA court; the prosecutor, Mrs. Milka Boyadzhieva, asked who wrote the BTA report published in the press on May 24, 1986 and saying that the existing restrictions had been lifted and background radiation was within the natural limits. The name of General Sultov of the Civil Defense was mentioned in connection with this report.

Mr. Stoichkov said that the report did not come from the government and had no outgoing number from the Civil Defense.

The defendant mentioned a letter saying that the results of the readings taken by the Chief Administration of Hydrology and Metereology were deliberately elevated so that the laboratory assistant could get extra danger money. A similar, more detailed letter had been sent to parliament as well.

Only during the investigation Grigor Stoichkov got to know [as received] that the former Alternate Member of Politburo of the CC [Central Committee] of the BCP [Bulgarian Communist Party] Georgi Yordanov and Academician Blagovest Sendov had been engaged in a study of "hot" particles and in gathering samples, but he knew neither about their research, nor about its results.

The trial will continue tomorrow with the questioning of the defendant Lyubomir Shindarov, former first deputy minister of health and sanitary inspector general.

Shindarov Pleads Not Guilty at Chernobyl Trial

AU1704192091 Sofia BTA in English 1841 GMT 17 Apr 91

[Text] Sofia, April 17 (BTA)—Today the second defendant in the "Chernobyl" trial also categorically refuted the charges of inadequate actions threatening the health of the Bulgarian population after the Chernobyl accident. Professor Lyubomir Shindarov, former first deputy minister of health and chief sanitary inspector, called the indictment unsubstantiated and biased.

"The prosecution is trying to create a myth about my being Grigor Stoichkov's chief adviser and 'evil genius,'" Lyubomir Shindarov said. (Grigor Stoichkov is the other defendant in the trial.) "The most unacceptable of all charges is that I have violated my elementary duties, thus making it possible for death and illness to occur," he added.

The defendant pointed out that a number of the charges should not be laid against him, but referred to other departments and officials. In this connection he drew a distinction between his duties stemming from the Sanitary Control Act and those of the State Sanitary and Veterinary Control and of the Committee for the Peaceful Uses of Atomic Energy.

According to Professor Shindarov, the accusations that he had not established a radiation protection system are unsubstantiated because such a system actually exists. The defendant claimed that after the Chernobyl accident he was not included in the principal bodies of this system the Standing Governmental Commission for Combating Major Natural Calamities and Industrial Accidents and the operative headquarters and expert commission that were set up with it. He received up-to-date information from these bodies, but irregularly. The situation with the information that should have been forwarded to him by the other competent authorities, the Civil Defense.

The defendant said that specialized international organizations did not accept the concept of a group of Bulgarian scientists about the so-called hot particles detected in this country. The international institutions also disagreed with the administration of iodine preparations to the population, arrangements for which had been made.

He quoted statements made by representatives of international organizations, according to which the radiation situation in Bulgaria did not differ from that in the other East European countries. It was asserted at symposiums that the radiation exposure of the population as a result of the Chernobyl accident was so small that its probable effect on various diseases would hardly be distinguished in the general picture of diseases in normal conditions.

Professor Shindarov apologized to the man that was beaten on Monday at the opening of the trial because he was mistaken for him.

At the end of his self-defense, Professor Shindarov was visibly upset and even started to cry when speaking of the moral duty of the medic. This brought about the postponement of his questioning for tomorrow.

Shindarov 'Instructed' by Soviet Embassy on Chernobyl

AU1904091091 Sofia BTA in English 2118 GMT 18 Apr 91

[Text] Sofia, April 18 (BTA)—Prof. Lyubomir Shindarov, former sanitary inspector general, casually told the court today that information on the radiation situation used to be classified. Prof. Shindarov is defendant in Case No. 2, known as the Chernobyl Case. After the Chernobyl accident he visited the Soviet Embassy in Sofia "to be instructed on how to act under the circumstances." He had been told that "it was nothing serious, and that the embassy would keep in touch with the Bulgarian Government."

Prof. Shindarov said that the Standing Governmental Commission on Management of Natural Disasters and Major Industrial Accidents, headed by Grigor Stoichkov, the other defendant in the trial, had usurped many functions of Shindarov's inspectorate. Grigor Stoichkov pleaded not guilty of the aftereffects of the Chernobyl accident on the Bulgarian people. On his part, Prof. Shindarov said that the sanitary inspector general was almost a figurehead office.

One of the questions he did not answer was why he had waited for information on the situation in this country after the accident instead of asking for it himself.

The court will question witnesses on the case on Monday.

Only Exports Checked for Radiation After Chernobyl

AU2604191091 Sofia BTA in English 1713 GMT 26 Apr 91

[Text] Sofia, April 26 (BTA)—Today the witnesses at the Chernobyl trial, which has been going on for two weeks now, said that the Economic Corporations Farmakhim, Bulgarplod, Zurneni Khrani and the Cooperative Enterprise Bilkokoop had checked their products for radiation contamination. However, the testimony suggests that the measures applied only to exports. The foreign partners insisted that the products should be accompanied by radiation control certificates. The Bulgarian producers and exporters complied with the radiation safety regulations of the different countries.

By the time of the second radiation peak in February 1987 (which resulted from feeding contaminated food to farm animals) the authorities had still not issued written instructions to the producers to check their produce for contamination.

The defendants at the trial are Grigor Stoichkov, former chairman of the Governmental Commission for Management of Natural Disasters and Major Industrial Accidents, and Lyubomir Shindarov, former sanitary inspector general.

Members of the panel of judges declined to make predictions about the outcome of the trial, emphasizing that it was too early to draw any conclusions.

Government To Draft National Nuclear Accident Plan

AU1104091291 Sofia BTA in English 2124 GMT 10 Apr 91

[Text] Sofia, April 10 (BTA)—By the year's end Bulgaria will have a national plan for protection of the population in the event of an accident at the Kozloduy Nuclear Power Plant, meeting international standards and the IAEA [International Atomic Energy Agency] requirements. Ecologists and the general public have been particularly sensitive about nuclear safety.

The decision to draw up the plan was made by a government commission which met today to consider the results of a two-day command-post civil defence drill based on a scenario simulating an accident at the Kozloduy Nuclear Power Plant which results in radioactive contamination of the entire country.

Judging by the results of the drill, the civil defence system has satisfactory readiness to cope with a nightmarish option like that by standards which the commission's chairman Mr. Aleksandur Tomov described as "East European."

Indicatively, the three tonnes of potassium iodide, needed for iodine prophylaxis of all Bulgaria in the event of radioactive contamination, proved "missing" as the competent ministry just intended to import the stuff if necessary.

Mr. Tomov, who is deputy prime minister, said that Bulgarian scientists have developed specialized food and forages absorbing radionuclides which meet and even surpass world standards, but they are gathering dust in various safes because they are regarded as "top secret." They must be declassified and used sensibly, Mr. Tomov believes.

Prof. Bonchev, head of the Atomic Physics Department at Sofia University, dismissed as speculation the publications which describe the situation in the plant as tragic. There have been reports that the Kozloduy N-Plant is on the "brink of disaster." There is no such thing. The plant functions normally and we don't expect any accidents, the expert said. Together with his colleagues he conducted a several-months-long study of the operation of the plant.

Prof. Bonchev, however, welcomed the special mode of operation introduced by the government for the four old Soviet-built VVER-400 reactors. Under this mode of operation, the staff manning the reactors will get pay raises, along with higher responsibilities, including criminal liability, for the trouble-free operation of the plant; a storage facility for nuclear waste will be built and other safety measures will be taken.

Bulgaria will count on international financial support for making Kozloduy safe by international standards, "a problem with transboundary implications," as Mr. Tomov described it. He stressed Sofia's desire to work seriously and responsibly to guarantee the safe operation of the Kozloduy plant. In May the Civil Defence will hold a nationwide exercise to test reaction to a nuclear accident there. Also in May, experts of the International Atomic Energy Agency will hold a special seminar to familiarize Bulgarian experts with the IAEA requirements for the safe operation of nuclear power plants.

Consequences in Bulgaria of Chernobyl Accident

AU1604074091 Sofia BTA in English 2006 GMT 15 Apr 91

[Text] Sofia, April 15 (BTA)—The culpable silence kept over the Chernobyl accident of April 1986 and the underestimation of its consequences may have some tragic effects on Bulgaria's population which will become apparent in the next 50 years. This is one of the theses of the indictment presented at today's opening of the trial of two of the main culprits for the failure to adopt the

necessary safety measures to protect the population and for underestimating the possibility for a secondary contamination of people and animals.

So far there are no concrete medical observations, but an abrupt rise in the incidence of malignant diseases may be expected.

The high-ranking state officials of the former regime Grigor Stoichkov and Professor Lyubomir Shindarov will be held responsible for their culpable actions and inertness in the months following the Chernobyl accident.

This was how events developed in Bulgaria after the accident. Measurements were started on April 30, 1986 when it was already known that the cloud would pass over Bulgaria's territory, which actually happened on the night of May 1 to May 2. The samples taken by the Central Hydrology and Meteorology Department with the Bulgarian Academy of Sciences then showed a great rise in radioactivity. The data surpassed the usual values from several hundred to several thousand-fold.

Then drinking water began to be monitored and the first "hot particles" were detected on May 5. On May 8 their concentration exceeded the admissible norms thousands-fold.

Measurements, taken on a mountain peak on May 3, showed an on-ground contamination of up to 120,000 Becquerels per square meter. In May on-ground contamination in southern Bulgaria ranged between 340 and 1,700-fold the usual values and in northern Bulgaria between 90 and 1,400-fold.

Some fifteen radionuclides were discovered in the different samples: iodine 131 and 132, caesium 134, 136, 137, strontium, barium and others.

On May 5 the Central Laboratory of Radioactive Protection and Toxicology established that the radionuclides in sheep's milk exceeded the admissible concentration of 500 Becquerels per litre 79-fold.

In a sample of milk the Sofia University experts measured a concentration of up to 150,000 Becquerels per litre.

But almost no measures were taken to protect the population. Precaution measures were taken only in the Army. Examinations made in the town of Sliven (southern Bulgaria) showed that the concentration of iodine in the thyroid gland of soldiers was ten times lower than that in the case of schoolchildren and adults.

Secondary radioactive contamination began late in 1986 when farm animals began to be fed with contaminated fodder.

At the beginning of May 1986, the cesium measured in men of the 19-30 age-group was up to 7.7 Becquerels per kilo. In March-April the following year it had increased to 320 Becquerels as a result of the intake of contaminated foodstuffs.

According to UN data Bulgaria ranked 11th among the European countries contaminated after the Chernobyl accident. But through the action or inaction of the Bulgarian authorities, now Bulgaria tops the list by the iodine content in the thyroid glands of her population and by its cesium radioactive contamination.

This folly has a material expression, too. The economy suffered damages to the tune of more than 2 million and 600 thousand leva. But the other damages are immeasurable...

MP's To Sign Statements on Chernobyl Aftermath

AU1904092491 Sofia BTA in English 2221 GMT 18 Apr 91

[Text] Sofia, April 18 (BTA)—Parliament resolved today that MP's should sign a sworn statement that they have not enjoyed special privileges for protection from the effects of the Chernobyl disaster.

The text runs as follows: "I hereby declare that following the accident at the Chernobyl Nuclear Power Plant and until the spring of 1987 neither I nor my family have received restricted information on the risk of the radiation situation, that we have not enjoyed any special treatment either by the Security and Protection Department or by any other state institution, aimed at avoiding the said risk."

There are MP's who were catered for by the Security and Protection Department.

Nuclear Power System Afflicted by 'Knot of Problems'

AU2204133391 Sofia VECHERNI NOVINI in Bulgarian 17 Apr 91 pp 1-2

[Interview with Professor Tsvetan Bonchev, chairman of the Commission on Nuclear Power Supply Issues at the Chancellery of the chairman of the Republic, by Rumyana Kochanova, VECHERNI NOVINI reporter; date and place not given—"Effect of Management From Afar"—first paragraph is VECHERNI NOVINI introduction]

[Text] After the shocking facts about the state of our nuclear power industry, enhanced by normal human fear and the bitter memory of Chernobyl, we have the right and even the duty to hear the qualified opinion of an expert. We contacted Professor Tsvetan Bonchev, chairman of the Commission on Nuclear Power Supply at the Chancellery of the chairman of the Republic.

[Kochanova] Mr. Bonchev, your commission recently completed a report on this issue. What is the government's attitude to the report?

[Bonchev] The Council of Ministers was supposed to prepare two decrees on the basis of the report—on the situation at the Kozloduy Nuclear Power Plant and on establishing an integrated system to protect the population from radiation. However, when we presented Deputy Prime Minister Aleksandur Tomov in writing with our objections to the first draft decree he halted further work on the decree. We categorically believe that in its current form the decree does not resolve the problems and does not provide an answer to the question of the causes of the situation in our nuclear power supply system. What are those causes? First of all—the poor organization. For many years, in fact from the very beginning, the nuclear power supply system has functioned as an appendix to the Committee on Power Supply, and before that—as an appendix to the Ministry of Power Supply. This did not mean that there were not experts in Kozloduy who could cope with the work themselves. On the contrary. But it simply did not suit the interests of the bosses to have them do so. Do you think that people who came from the heating and electric power system (this is where the bosses came from) were able to deal with the issues of this complex branch? Furthermore, is it possible to manage this branch "from afar"? This is absurd. Proper organization costs nothing. On the contrary, it will lead to savings. Indeed, the situation is as follows: The management of the nuclear power supply plant is viewed only as an executor. At the same time the members of the Committee on Power Supply do not understand anything about nuclear power and hope that the specialists will cope alone. Thus in the final analysis no one is responsible for anything.

[Kochanova] How should we start to untangle this knot of problems?

[Bonchev] The people who understand the issues should be given rights and independence. They should not be underestimated any longer or turned into subunits of various companies and organizations. For example, the economic aspects of the Kozloduy Nuclear Power Plant never were in the hands of its leaders. When our commission studied the matter we learned that those people did not know the prime cost of their product. Indeed, there never was a sound economic policy at the nuclear power plant, and there is not one even now.

However, the top echelon of our bureaucrats adopted the following "ideology": if they do not understand, it means that no one understands. Thus, they wait and rely on help from abroad—imported licenses and technologies—which cost the state a fortune. This practice is unjustifiable. We pointed out in our report that there will be no nuclear power supply if we do not rely on our own intellectual potential. Do you know that until now not a single kilogram of nuclear waste has been processed, despite the fact that people have been sent abroad many times to study this issue?

[Kochanova] You say that the nuclear power industry needs managers. However, today it does not even have specialists who could activate the sixth reactor....

[Bonchev] Yes, this is so. However, in this particular case the Ministry of Education must be blamed, because in recent years it neglected to plan for and train such cadres. Thus, now we do not have young specialists. This especially applies to the period after Chernobyl. The people who work at the nuclear power supply plants have an average "fitness" term of 7.5 years, which is the world average. This is not because of the radiation, but simply because one cannot stand the tension for any longer. Indeed, now that almost all Soviet specialists have left, except those engaged in license control [avtorski kontrol], I do not know how we can activate the sixth reactor. Perhaps we think that the high wages will attract people who used to work there, and they will return. However, one cannot rely on them. They are worn out. As a matter of fact, the nuclear power supply system does not have any kind of system for checking the physical and psychological condition of the experts.

[Kochanova] People say that the first four reactors in Kozloduy are in a bad state, and there have even been calls to switch them off. Could you objectively tell us what their state is?

[Bonchev] According to the commission's opinion, as a result of negligence the reactors' control-measuring systems—their sensory organs—were permitted to be put out of operation. Simply, nobody bothered to maintain them. The people operate on the basis of intuition. Is this not a shameful situation? After all, Bulgaria has a respectable place in the area of computing equipment. Work should begin in this sphere, despite the fact that there are problems in the very corpus of the reactors.

[Kochanova] You mentioned that it can be assumed that legal proceedings might be taken in the near future against the former leadership of the power supply system. What did you have in mind?

[Bonchev] I meant first of all the theft and waste. A vast amount of property was stolen from the warehouses of many organizations in Kozloduy. The fact that somebody must be held accountable for the present state of the power supply system is another issue.

Forestry Enterprises To Become Independent

AU1804161391 Sofia DUMA in Bulgarian 13 Apr 91 p 1

[Boris Gospodinov report]

[Text] The forestry companies which have existed until now are to be transformed into independent companies dealing in trade and services—this decision was adopted at a national forest industry conference held on 12 April.

As of 15 April, 16 regional directorates of forests are to be set up, as well as 161 state forest reserves.

The regional directorates will not engage in economic activities. It is envisaged that their main functions will be aimed at conserving and developing forests.

The state forest reserves are to be independent. They will deal with conserving and reestablishing forests and game. The usage of timber and forest products will be related to the forests' capacities and rate of reproduction.

Official on Ecological Damage From Acid Leak Into River

AU2304195591 Sofia BTA in English 1859 GMT 20 Apr 91

[Text] Sofia, April 23 (BTA)—After the accident in the Georgi Damyanov Works in Srednogorie, the water of the River Topolnitsa is still unusable for household needs, watering farm animals and irrigation. Today Dr. Valentin Bosevski, deputy minister of the Environment and member of the Governmental Commission for Management of Natural Disasters and Major Industrial Accidents, detailed reporters on the damage inflicted on the ecosystems of the Rivers Pirdopska and Topolnitsa. Small quantities of sulphuric acid are still leaking into the rivers but their general condition is going back to normal.

Dr. Bosevski fears that similar accidents are possible in other enterprises keeping "aggressive" liquids and compounds in their depots in old and unreliable reservoirs.

Dr. Bosevski also said he would be grateful if experts of the Green Movement Ecoglasnost carry out an investigation along the River Topolnitsa even if their results refute the official results obtained by the ministry experts.

CZECHOSLOVAKIA

Cabinet Session on Environment

LD2504214491 Prague CTK in English 1916 GMT 25 Apr 91

[Excerpts] Prague April 25 (CTK)—The Czechoslovak federal cabinet said today Czechoslovakia will push for an early signature of documents on the abolition of COMECON (Council for Mutual Economic Assistance).

In a communique from its session the cabinet said that Czechoslovakia will support the stand of other European COMECON members that propose that the new forum for multilateral cooperation which may replace it be a European regional structure open to the participation of other European and non-European states. [passage omitted]

The federal cabinet took note of a report on the environment in Czechoslovakia which it is going to present to parliament. The report calls environmental legislation in Czechoslovakia unsatisfactory. It says that on the whole there was no major improvement in the environment in Czechoslovakia during 1990 and at the beginning of 1991. Only a slight drop in solid emissions can be expected in some big plants but the level of emissions of sulphur and nitrogen oxides, water quality, soil erosion, waste disposal and the protection of nature all remain critical issues.

Amendments to existing legislation are being prepared to streamline the complex but inefficient regulations. A comprehensive draft of tax and other reliefs intended as the backbone of the economic basis for environmental protection is to be submitted to the government in mid-May. The government acknowledged the assistance the European Community, Switzerland and the World Bank have provided to Czechoslovakia as it tackles its environmental problems.

The cabinet rejected allegations in the press of disunity among government members over economic reform policy. According to the communique "the government members reached the view that there are no major differences between their views on these issues".

The federal government allocated 9.3 million crowns from the state budget to finance the integration of Czech repatriates from areas of the Ukraine affected by the 1986 nuclear accident at Chernobyl. The government directed its commissioner for repatriates to continue intensive talks with the Ukrainian and Soviet authorities in an effort to repatriate all ethnic Czechs from the threatened regions.

Water Sources Near Reactor Found Contaminated

LD1204210891 Prague Federal 1 Television Network in Slovak 1730 GMT 12 Apr 91

[Summary] Suspicion that underground water sources are contaminated by radioactive waste from the decommissioned A unit at Jaslovske Bohunice Nuclear Power Station has been corroborated by measurements taken last year. Wells in nearby villages were found to contain tritium, but allegedly within permissible limits. The local people still have not been told officially about the results of the measurements, nor have they been told whether or not it is advisable to use the contaminated water. The source of the contamination is underground tanks containing radioactive waste.

An official from the local environmental health office in neighboring Trnava explained that the Jaslovske Bohunice plant has been fined 1 million crowns for causing the contamination, and measures have been taken to prevent further contamination. The power station management has appealed against the fine, and a decision is awaited.

Water discharged from the nuclear power plant still contains tritium, cobalt, cesium, and other radionuclides, but according to information received today from the environmental health office in Trnava, work is under way to clean up this source, and within six months, the water discharged will be free of contamination.

YUGOSLAVIA

Debate on Recycling Waste Material in Uranium Mine

91WN0354A Ljubljana NEODVISNI DNEVNIK in Slovene 21 Mar 91 p 7

[Article by Petar Colnar: "The Waste Cannot Go Into a Pit"]

[Text] Skofja Loka, 21 March—It will obviously not be possible to satisfy some demands from the Skofja Loka Greens when RUZV (the Zirovski Vrh Uranium Mine) is closed. Thus, for example, it is not possible to return the excavated waste to the pit, not just because it would be an enormous additional expense, but also primarily because there is so much material that there is simply not enough room in the mine's shafts.

Engineer Marjan Ursic, the director of RUZV, stated at a meeting of the opstina IS [Executive Council] that there were 400,000 cubic meters of that material. That means half of what has been excavated, for instance, in the Karawanken tunnel.

The director thought that an expert commission should decide on the matter, however. The Greens in the Skofja Loka opstina, in fact, are warning about the danger that the excavated waste might someday fall down the slope. Because of the downpours in October and November, there has been an increase in radiation, which has exceeded the annual level of 1989; they are consequently demanding that the waste be suitably covered.

Director Ursic explained that experts would also have to respond to this. According to the miners' assessment, a two-meter layer of coarse material will be needed, and then another 30 centimeters of topsoil on top of that.

"Dissension" is also occurring over the demand that 80 buildings should also be demolished when the mine is closed. Experts will also have to state their opinion in this case. Specifically, these are extremely sturdy buildings, since they meet safety standards for ninth-degree earthquakes. Their destruction would mean an extremely expensive undertaking. Current calculations indicate that the closing of RUZV will cost Slovenia 350 million German marks [DM]. Another DM350 million, in fact, would have to be deducted for demolition.

At the meeting of the opstina executive council, there was again determined opposition to the plans to organize an EKOTEK program as well in the abandoned mine shafts, i.e., activity for the mechanical, chemical, and thermal processing of individual waste materials, from which useful materials would be obtained. This is a proposal within the framework of advice from the firm Fischer, through which (EKOTEK) up to 110 mine workers could be employed.

The director explained that it was not true that any sort of storage of the waste would be considered. It is a question of recycling waste materials, which the opstina also has a great deal of. The mine will not hinder consideration of this, although it, itself, is also warning about the unsuitable geological composition of the soil. Because of this negative attitude toward one of the most promising technologies, the Fischer firm is said to have already "cooled" in its willingness to cooperate. This does not bother the citizens of Skofja Loka, because they are firmly convinced that an area that has already suffered major ecological damage does not need still more "ecological bombs."

There will obviously still be considerable dissension. It will be considerably greater than it would be with the normal closing of a mine. Director Ursic pointed out that the mine was closed virtually overnight, in July 1990, although in the world, mines are closed slowly, while operating. That way there is much less difficulty. At RUZV, however, more and more difficulties are appearing, and for that reason the most important thing, as Tone Jenko stated, is actually that the republic government give the mine money so that it can proceed.

CAYMAN ISLANDS

George Town Harbor Monitored for Pollution

FL2504152591 Bridgetown CANA in English 1303 GMT 25 Apr 91

[Text] George Town, Grand Cayman, Cayman Islands, April 25, CANA—Government agencies here are monitoring the waters of George Town Harbour to determine if they are being polluted by sewage and other contaminations. Cayman Water Authority Director Richard Bestwick confirmed the study was in progress but dismissed suggestions that the waters are unsafe for swimmers and scuba divers.

"There has been some concern expressed recently that there may be some sewage pollution in there," said Bestwick.

As a result of this concern, the water authority, along with the Department of Natural Resources and the Office of Environmental Health have "agreed to monitor the situation over a period of 12 months and report to government accordingly," said Bestwick.

Laboratory technicians are taking samples from the water every two weeks, he said, and testing for bacteria that could be harmful to humans if swallowed or coming in contact with the skin. He said the results of the survey would be made available to the public.

"At this time the data indicates there is no great problem," said Bestwick, adding the water was safe for swimmers and divers. If the waters are found to be polluted, the cause could well be over-flow from the large number of underground septic tanks built in downtown George Town over the past 15 years, said one local environmentalist who asked not be identified.

"The liquid waste in these tanks seeps into the ground and into the water table. From there, tidal action will eventually take it out to the harbour," he said.

Another possibility, he said, was that cruise ships were dumping their waste while at anchor in the harbour.

"They are not supposed to dump within three miles of the shore, but they seem to often forget about that rule."

George Town, the capital of this British dependent territory, has grown in the past 15 years from a population of about 4,000 people to a thriving business and offshore banking centre with approximately 16,000 people living and working within its confines. Numerous banks, shops, and office buildings have been erected next to the harbour in the past few years. In addition to banking, the Cayman Islands are noted as a tourist destination with more than 600,000 visitors annually. The clear waters surrounding the islands are a main attraction for scuba divers.

George Town Harbour, know locally as Hog Sty Bay, is a popular swimming and scuba diving location for both locals and tourists to Grand Cayman, the largest of the three islands that comprise the Cayman Islands.

GRENADA

Environmental Concerns Linked to New Venezuelan Fuel

FL2204123491 Bridgetown CANA in English 1629 GMT 20 Apr 91

[Text] St. George's, Grenada, April 20, CANA—A new fuel Venezuela is offering Grenada for electricity-generation has cost-saving potential but may raise environmental concerns, energy officials here reported. The new fuel, orimulsion, is now being sold at about seven U.S. dollars per barrel and would represent a substantial saving for the Grenada Electricity Company (Grenlec), which uses diesel, said the officials, who did not want to be identified.

But with a 3 percent sulphur content, the oil could bother some environmentalists, they said. "This is a considerably higher level of sulphur than the one we presently use," a Grenlec spokesman said.

Grenada and Venezuela discussed energy when Prime Minister Nicholas Brathwaite visited Caracas this month.

"The Venezuelans will send to Grenada very soon a technical team to look at our electricity generators here to determine whether we can make the adjustment," the prime minister told reporters.

"I think this will be a tremendous development if it proves to be successful," he said.

The government has long been trying to find cheaper ways of generating electricity. It signed an agreement with a United States based company, Waste Ventures, last year that would have allowed the burning of waste here for the generating of electricity. However the plan was scrapped in the face of public pressure.

HONDURAS

Industrial Waste Pollution Endangers Citizens

91WN0341A San Pedro Sula TIEMPO in Spanish 18 Feb 91 pp 30-31

[Text] (EMA)—The waste materials of industrial origin which are being dumped into the Bermejo, Sauce or Chotepe, Blanco, and Piedras Rivers, which empty into the Chamelecon and Ticamaya Lake, in addition to contaminating these waters, represent a serious threat to the residents of this zone.

Engineer Alfredo Di Palma, of the Municipal Water Division (DIMA), says that the effects of the dumping of industrial waste are further augmented by household

waste, the result being a high rate of mortality, principally in the summer season.

These waste materials also threaten the lives of fish and plants, due to the lack of oxygen, which is absorbed by the toxic substances dumped in the water, according to research carried out by the laboratory department of that division, Di Palma said.

Sources of Contamination

Contaminating waste is discharged in large quantities by the San Pedro Textiles, Kativo, Cerveceria Hondurena [Honduran Brewery], Productos Lacteos Sula [Sula Dairy Products] enterprises, and the Central American Canning Enterprise (ECCA), which are working with the DIMA to counteract the effects damaging health and the environment.

These discharges of waste contain microorganisms which, when dumped in the water in large proportions, reduce the organic matter and absorb the greater part of the oxygen in the water, thus preventing other living beings which need the oxygen (fish and plants) from surviving, Di Palma explained.

Substances such as chromium, lead, lactic acid, and other solid wastes dumped by these industries directly affect vegetation, since the products harvested in this zone (plantain, tomatoes, and radishes, for the most part) reveal a high level of contamination, threatening to the lives of the citizens who consume them, Dr. Oscar Molina, the head of Health Region No. 3, has confirmed.

Contaminated Water Consumed

The people who live along the banks of these rivers use the contaminated water to launder their clothing, irrigate their gardens, and even to bathe, "running the risk of suffering from diarrhea and even toxicity, if they consume the contaminated water," Dr. Molina warned.

He said that simply by being in contact with this water, people become vulnerable to dermatitis or infections of the skin, and what is more serious, to a weakening of the defenses within the organism.

The industries which discharge these wastes should store them in concrete pipes and empty them where there is no population concentration, thus preventing these risks and the contamination of the subsoil (and as a result, the plants), the doctor recommended.

Children Made Innocent Victims

Children, unaware of this danger, swim and fish for sardines from the banks of the Bermejo River all day long. Their happiness is complete when their nets yield some of these fish, which they then take home to enjoy.

But the contact with contaminated waters is not limited to fishing. The residents of the areas along the brooks which are tributaries of the Piedras River, which runs near the San Pedro Textile factory, say that even when the water appears filthy, they let it settle, and then use it to wash all of their clothing. They do say, however, that they do not use it for drinking purposes, because it contains a great deal of garbage.

The children, together with their mothers, also take water from the river to use for their domestic chores. But to satisfy their thirst, they must go in search of clean water to the nearby localities and factories. To this end they must walk barefoot under the hot sun along stony paths, through great clouds of dust.

It is the children who suffer the serious consequences of this contamination the most, because in their childhood world, lacking any understanding of the imminent threat, they like to remain submerged in the river waters.

According to the studies carried out in the DIMA laboratories, the many toxic substances contained in the waters of these rivers can produce illnesses ranging from ear infections to cancer, the head of the laboratory, Rosa Lilia de Rivera has said.

Engineer Di Palma has reported that another problem is encountered because of the deforestation which occurs in the summer season, mainly along the Chamelecon River and Ticamaya Lake (the main sources of water for the city). This deforestation substantially reduces the water flow, and it is then that the chemical wastes affect the aquatic life and contaminate the entire environment.

Solutions Sought

The DIMA is very interested in ensuring that enterprises treat their waste materials in such a way that they will no longer produce contamination. Its plans include the future construction of the San Pedro Sula Water Treatment Plant, Mrs. de Rivera explained.

She said that there is special interest in this project, because many sewage pipes are also affected by the high temperatures of the waste materials produced by enterprises such as the Finlay Laboratories. These wastes, in addition to damaging general structures, also increase the institution's operational expenditures.

On the other hand, this official said that specific studies have already been made of the problem as it affects the waters of these rivers, and discussions are under way with businessmen so that they can begin to plan how to invest a part of their income in the treatment of the waste materials they discharge into various bodies of water in the city.

Inspectors Combatting Illegal Woodcutting

91WN0341B Tegucigalpa EL HERALDO in Spanish 27 Feb 91 p 44

[Text] Last weekend, Honduran Corporation for Forest Development (COHDEFOR) inspectors seized 13 trucks involved in the illegal cutting and transporting of firewood from communities near Tegucigalpa.

Between 1800 on Friday and 0900 on Saturday, 10 COHDEFOR employees, assisted by soldiers from the First Infantry Battalion, stopped seven vehicles coming from Ojojona, four from Talanga, and one from San Matias y Lepaterique.

The woodcutters were taking out at least 200 loads of firewood they planned to sell in Tegucigalpa. These individuals carry out this operation at night in order to avoid detection by the COHDEFOR inspectors.

According to Marco Tulio Fonseca, the official in charge of fire control in the Central District, the woodcutters are creating a tremendous problem for the COHDEFOR, since their exploitation of the forest resources is steadily increasing.

The woodcutters take out 7 million cubic meters of firewood every year. The greater part of it comes from the areas around Tegucigalpa, this official explained.

The COHDEFOR issues permits to woodcutters allowing exploitation in strategic locations. However, between 40 and 50 percent of the woodcutters are operating illegally, he said.

Of the firewood seized, 70 percent was oak, and the balance was pine.

The owners of the trucks and the firewood were waiting at the COHDEFOR offices yesterday to pay their fines for harm done to and losses in the forest, in addition to between 100 and 500 lempiras for the return of their vehicles. Many of the woodcutters will have to pay a thousand lempiras, because they are repeat offenders, Fonseca said.

The destruction of the Honduran forests is a source of worry for the employees of the COHDEFOR, our interlocutor added, since burning is also a very great problem in this season. In the few months thus far this year, 17 fires have been reported, leaving 40 hectares of forest destroyed.

Deforestation Endangers City Water Supply

91WN0350A San Pedro Sula LA PRENSA in Spanish 1 Mar 91 p 43

[Text] El Progreso—Judge Rafael Montoya of the Municipal Police has charged that farmers from Mata de Platano village are deforesting the mountains where the water catchment area of the Rio Pelo is located. The river is the source of water for El Progreso.

The municipal official threatened to jail the people destroying the forests and at the same time he denounced the fact that the National Agrarian Institute, INA, was responsible for settling the farmers involved near the source of the Rio Pelo.

The judge said that due to the deforestation of the mountains, plus the summer heat affecting the region, the level of the Rio Pelo has dropped substantially, to the point that near El Progreso the only thing which can be seen in the bed of the river is rocks and sand.

Furthermore, Judge Montoya pointed out that to the foregoing aspects of the problem should be added the fact that the many forest fires which occur in the mountains are presumably caused by the actions of criminals.

He said that in view of this situation water is being rationed in the city. However, to prevent a serious drought, municipal police have been sent to the headwaters of the Rio Pelo to determine the extent of the damage, identify those responsible for the destruction of the forest, and punish them with the full weight of the law.

NICARAGUA

Forest Fire Losses 'Surpass $5 Million'

PA2104231991 Managua LA PRENSA in Spanish 15 Apr 91 pp 1, 12

[Report by J. Ivan Olivares B.]

[Text] According to preliminary evaluations by Institute of Natural Resources (IRENA) officials, losses due to extensive forest fires in Nicaragua's north Atlantic area surpass $5 million.

The Norwegian Government is to donate $29,000 for fire prevention tasks in that area. So far, $4,000 has been disbursed and as a result, IRENA's entire Forestry Protection Department will tomorrow move to Puerto Cabezas, together with the first teams to fight the remaining fires.

IRENA experts calculate that about 70,000 cubic meters of precious lumber has been destroyed. With an average price abroad of slightly over $72 per cubic meter, this easily surpasses the $5 million mark.

This information, however, is unofficial, because a detailed lumber loss inventory is still pending. In addition, perhaps the loss to the fauna and its habitat—of great importance to area inhabitants' food supply—may never be quantified.

Leonardo Chavez, who is in charge of the Forestry Protection Department, has said that the fire simply burned itself out because "anything that could burn has already been burned out." Chavez spoke while readying shovels, pickaxes, bricklayers' hammers, rakes, compasses, and knives, which will be taken to that area tommorrow.

Chavez' trip will serve to transport to the area all this equipment and funds to contract for 100 people for one week, for 7,000 cordobas, thanks to the Norwegian donation.

The new personnel will patrol the area so as to control any possible new fires, as well as put out any that may still be burning.

Part of the remaining funds will be used to reactivate 12 fire watch towers, six of which were completely destroyed, but which were successfully used in the past, in addition to purchasing spare parts for transport vehicles and fire trucks in Puerto Cabezas and other nearby villages, which could not be used to fight the fire due to the lack of spare parts and fuel.

IRENA expects to completely evaluate the damage and present its findings to the government to seek sufficient financial support for implementing prevention plans.

VENEZUELA

Conservation Head Reviews 1990 Ecology Report

91WN0377A Caracas EL NACIONAL in Spanish
11 Jan 91 p C5

[Article by Hercilia Garnica: "Venezuela Ecologically Destroyed Over Past 30 Years"]

[Text] Before beginning a press conference called at his organization's headquarters yesterday, Aldemaro Romero, executive director of Bioma, the Venezuelan Foundation for the Conservation of Biological Diversity, warned that the presentation of the Environmental Assessment of Venezuela (a report on the country's ecological situation up to 31 December 1990), was not intended to be alarmist. However, 14 points contained in the executive officer's summary demonstrate precisely the opposite. For example, between 1960 and 1990, Venezuela had the highest population increase in Latin America.

Romero nevertheless emphasized the informative nature of the diagnosis and made it clear that never had he intended that the in-depth research be a condemnation or criticism of persons or institutions.

Indeed, a wide range of documentary sources were consulted in the libraries of Bioma, the Ministries of the Environment and Natural Resources, Agriculture and Livestock, Health and Social Welfare, and the Central Office of Statistics and Data Processing. Over 15,000 press reports were examined and the testimony of reliable individuals was taken.

Despite the gloomy picture that Romero presented with the help of slides, hope for changing the trend persists, even though man has failed to realize that the solutions are in his hands.

Venezuela: 14 Times in First Place

The following are 16 points that comprise the executive director's summary of the assessment. Only two of them may be reassuring:

1—Between 1960 and 1990, Venezuela had a population increase of 290.66 percent, the highest in Latin America and five times the world average.

2—Venezuela is the sixth-ranking country in the world in terms of its urban population ratio and in first place in Latin America.

3—Venezuela is one of the countries in the world with the greatest biological diversity, which presumes lofty ecological, economic, aesthetic, and ethical values.

4—By 1990, deforestation amounted to 30 percent of the national territory, which in relative terms is triple the most extreme calculations for the Amazon region of Brazil.

5—A large part of the Areas Subject to Special Management suffer from some problem.

6—Various areas of the country show alarming symptoms of soil erosion and desertification.

7—Over 90 percent of Caracas's air pollution stems from motor vehicles.

8—In 1990, Venezuela contributed some 30 million metric tons of gases to the "winter effect," equal to 0.5 percent of total world production.

9—In 1990, we produced 5 million metric tons of gases which help destroy the ozone layer.

10—Several cities in Venezuela exceed allowable limits of air pollution, including carbon monoxide and lead.

11—The average temperature in the Caracas Valley has steadily risen over the past 100 years.

12—Ten hydrographic basins experience serious water pollution problems.

13—A large share of the country's beaches, those most popular with beachgoers, have been declared unsafe.

14—The amount of solid waste generated per person per day is increasing and has approached the levels of developed countries.

15—Positive results are being achieved in the area of solid waste recycling.

16—The presence of "squatters" along our borders will require intensified surveillance. Even so, socioeconomic factors will make it very difficult to eliminate this problem completely.

Man Responsible

Romero stated unequivocally in his well-documented presentation that today's environmental problems are generated by man and that there are four main types of difficulties:

Overpopulation: A high population density in a given region means a greater probability of generating more

pollution and exhausting resources more rapidly. In 1990, the world population was 5.3 billion and that of Venezuela 21.8 million. By the year 2020, it is estimated that the world population will total 8 billion and that of Venezuela 38 million. It goes without saying that between 1960 and 1990, our country recorded a population increase greater than that of China, India, and the world average.

Environmental pollution: May stem from two sources (man plays a decisive role in both): the generation of substances or waste in concentrations greater than nature can absorb and the expulsion of substances harmful to life into the environment.

The exhaustion of resources: This occurs when they are drastically reduced or when they are used beyond the replacement capacity of natural resources. This happens as a result of three processes: destruction of the resource itself, dissolution or displacement, and pollution.

Changes in planetary conditions: Climatic modifications such as the extinction of species and ecosystems are the causes of great changes in the natural equilibrium. Some 99 percent of the species that have existed throughout the planet's geological history have already disappeared.

Solutions Available to Man

Even though Romero stated at the very beginning of his press conference that his specific intention was not to condemn, he nevertheless said that the important document would be sent to officials in the Ministries of Environment and Natural Resources, Agriculture and Livestock, Health and Social Welfare, and above all, communal organizations.

He is confident that all the problems outlined have a solution and that only one requires more time: the extinction of species. The rest can, with the cooperation of everyone, have a favorable outcome.

Nevertheless, all those who use water, generate solid waste, and form part of the mind-boggling Caracas traffic have an opportunity to solve the problems besetting us.

A systematic and perhaps slow educational process is obviously needed, one that will contribute to growing awareness on the part of citizens. However, what is truly important is that all of us "embark upon such solutions right now" because tomorrow will be too late.

REGIONAL AFFAIRS

Black Rain Reported in Iran's Kerman Province

91WN0339B Tehran KAYHAN INTERNATIONAL in English 17 Mar 91 p 1

[Article: "Acid Rain in Kerman Province"]

[Text] Kerman, March 16 (IRNA)—Black rain fell in this southern provincial capital Friday night covering the city streets with polluted water.

A provincial meteorologist said that the black rain was caused by burning oil wells in the Persian Gulf island state of Kuwait.

He added that polluted clouds were moving towards southeast of Iran more specifically the 'Lut' desert.

Meanwhile oil pollution resulting from the burning Kuwaiti oil wells reached Daylam Port, in Genaveh, Bushehr Province, Thursday.

The pollution which is in the form of red and green slicks can be seen easily in the waters of Daylam Port. "The slicks are so dense that they can easily be inflamed," gendarmerie officers in the area said.

Black rain also fell in Genaveh, Bushehr, and other towns of this province Friday night.

Iranian Forests Threatened By Burning Kuwaiti Oil Wells

91WN0339A Tehran KAYHAN INTERNATIONAL in English 14 Mar 91 p 1

[Article: "Iranian Forests Threatened By Burning Kuwaiti Oil Wells"]

[Text] Nowshahr, Mazandaran Prov. (IRNA)—Air pollution and the likelihood of acid rains as a result of burning Kuwaiti oil wells have posed a serious threat to some 2.5 million hectares of semi-torrid Iranian forest along the Persian Gulf and the Sea of Oman, a group of experts announced here Tuesday.

They said these forests lie on 2.5 million hectares of the shores in Sistan-Baluchestan, Hormuzgan, Bushehr and part of Khuzestan provinces, and comprise valuable industrial plant species.

Intensive acid rains and pollutions caused by burning Kuwaiti oil wells will not only destroy the botanical distribution and abundant wood resources in the country, but also inflict losses on the plant life in the southern Persian Gulf States, they warned.

Meanwhile, heavy smoke has darkened the skies of Susangerd, Bostan, Hamidieh and Howeizeh in this southwestern province since Wednesday, blocking the sunlight. Automobiles have turned on their headlights while shops and street lights are on and the odor of burning oil has filled the area.

Acid rain continues to fall in most parts of the province and black water is running in city creeks.

Heavy Pollution in Iran From Kuwait Fires

LD2504204791 Tehran IRNA in English 1259 GMT 25 Apr 91

[Text] Ahvaz, Khuzestan prov., April 25, IRNA—Columns of dust and thick smoke covered the sky over many cities in this southern province as of Thursday morning. The smoke billowing from burning oil wells in Kuwait has severely polluted the air in Ahvaz, Abadan, Khorramshahr and Dasht-e-Azadegan, making it hard for their residents to breath. The smell of burnt out oil has also spread throughout the province. A report from Ganaveh in the southern province of Bushehr said the sky over the Persian Gulf port city was blackened by heavy thick smoke.

The air pollution caused by burning oil wells in Kuwait, set ablaze by Iraqi troops while retreating from the tiny sheikhdom they occupied on August 2, has affected central provinces, besides those in southern Iran.

The frequent fall of black rain in the provinces affected by the burning oil wells has contaminated a major part of Iran's water resources and agricultural products. Although it is said that fire in 60 out of the 600 burning oil wells in Kuwait has been brought under control, environmental experts believe that Iran will still be exposed to air pollution as long as all wells on fire are extinguished. [sentence as received]

Pakistan Daily on Threat to Environment Due to Kuwait Oil Fires

BK1304141191 Karachi DAWN in English 13 Apr 91 p 11

[Editorial: "Black Rain Is Here"]

[Text] Parts of Balochistan, according to experts, are likely to receive more black rain in the coming days as clouds moving into the province are laden with smoke particles from the massive oil fires raging in Kuwait. It is not known exactly how serious is this threat to health and environment, but since the ill effects of the servere atmospheric pollution are being felt in some neighbouring countries, Pakistan cannot remain unaffected for long. Soon after the Gulf war, the environmental group World Watch warned that agriculture and food production in vast areas of Pakistan could be affected. Sulphur dioxide emissions from burning oil-wells could damage crops and grazing lands. Black rain, experts now say, could cause lung diseases, affecting the respiratory system of human beings and animals. The oil fires are sending some 750,000 tonnes of soot into the air daily and could be producing three million tonnes of sulphur.

Kuwait oil has one of the highest sulphur contents in the world, the effects of which, according to experts, are very carcinogenic. So serious is the toxicity that evacuation from the worst affected areas in the Emirate is being considered.

The fires are belching clouds of smoke spreading as far as 1,600 miles from the wells, which could take more than two years to cap. On top of this, the massive oil spills have caused tremendous degradation of fish and aquatic life, a problem which has been made worse by the discharge of toxic effluents into the sea. More than a month has passed since the war came to a close and Pakistan's coast being not too far from the Gulf, the possiblity of the polluted waters having already reached the Arabian Sea and the coastal regions of some of the littoral states, therefore, is very real. The environmental situation in Pakistan, like in some other heavily populated regional states, was already bad enough when the present dangers came along to add to the worry.

Pakistan, in its present state, cannot meet the challenge without external assistance. It will have to step up programmes for assessing the threat and devising measures to combat it—an effort in which research organisations, including PCSIR [Pakistan Council of Scientific and Industrial research], EPA [Environmental Protection Agency] and PARC [Pakistan Atmospheric Research Council], have to play an important role by collating information and mounting coordinated efforts. Indeed, such is the magnitude of the problem that the best that Pakistan can do to control the effects of environmental pollution may not be good enough. International cooeration is essential for mobilising the necessary scientific knowhow and for adopting practical preventive and control measures.

A beginning in this direction can be made by forging initiatives at the regional level, especially when other states of the South Asian region are also likely to be affected in varying degrees. There is no doubt that such a course can produce useful results as indeed it has in the past in other regions. In the area of controlling pollution of the marine environment from land-based sources, agreed rules were framed, for example, in the 1974 Helsinki Convention on the protection of the marine environment of the Baltic sea area. It is a notable example of cooperation by coastal countries for preventing, reducing and controlling pollution of the sea. In recent times, the United Nations Law of the Sea Convention of 1982 also provided the mechanism and ground rules for minimising marine pollution. SAARC [South Asian Assocation for Regional Cooperation], which has protection of the environment as one of its objectives, can play a meaningful role both in assessing the scale of the menance created by the gulf war and intitiating measures for combating it.

ISRAEL

Health Ministry Denies Drinking Water Polluted

TA2504111991 Tel Aviv YEDI'OT AHARONOT in Hebrew 25 Apr 91 p 9

[Report by Ora Namir and Nurit Arad]

[Text] The agriculture minister's adviser's warning that the water we drink is both contaminated and carcinogenic is inaccurate, the Health Ministry announced in reaction to the alarming reports.

The Health Ministry admitted that the subterranean water has grown a little more polluted, but drinking water is supplied exclusively from wells whose water is tested and is found to be clean and good.

"There is constant watch for germs or carcinogenic elements in the water," said the communique.

The Health Ministry firmly denied that information on the subject is being withheld.

JORDAN

Jordan Valley Agriculture Threatened by Boron Pollution

JN2504123291 Amman JORDAN TIMES in English 25 Apr 91 pp 1, 6

[Text] Amman (J.T.)—Minister of Water and Irrigation Sa'd Hyil al-Surur announced Wednesday that the water of the King Talal Dam was polluted by boron and chemical substances and warned that contamination could reach an unprecedented level in summer.

"The water in the reservoir behind the King Talal Dam, which now contains more than 25 million cubic metres of water, mainly used for irrigation in the Jordan Valley in the dry season, is polluted by waste dumped in the al-Zarqa' River by factories in violation of the public safety regulations," the minister said in a statement to the Jordan News Agency, Petra.

"Despite contacts with the factory owners, and the long meetings held to discuss the problem as well as the constant flow of correspondence between the ministry and these factories, the waste continues to be dumped in the river, which flows to the King Talal Dam. The water in the dam feeds the irrigation canals heading towards the Jordan Valley region," the minister pointed out.

He said that Jordan was an agricultural country which depended mostly on the King Talal Dam's water, polluted now by waste water insufficiently treated by the factories.

"These plants and factories along the al-Zarqa' River insist on using in their operations boron (a metalloid

element) and certain chemicals which are difficult to be eliminated through the subsequent treatement process," the minister said.

He said that factories use boron because it is cheaper than other materials.

"Unless the factories are deterred from pursuing their action, the country is bound to face real danger," the minister added.

The minister's statement came one day after he and three of his colleagues in the Cabinet decided to put into force a 1989 government decision on the recycling of properly treated waste water for irrigation purposes in the production of field crops and vegetables which are eaten cooked and the production of animal feed.

Minister of Municipal and Rural Affairs and the Environment Muhammad al-Zabin said that treated water could provide a very good source for irrigation, but public health safety measures have to be strictly adhered to in the process of treating water to ensure safe production.

Mr. al-Surur said that Jordan was in need of at least 730 million cubic metres of water every year for agricultural, industrial and domestic use, of which 175 million is used for drinking, 35 million for industry and 520 million for agricultural purposes.

"Jordan's water needs are growing every year and it is estimated that the country will need nearly 1,120 million cubic metres of water by the year 2005 in view of the growing population, improvement in the standard of living and the increasing water consumption at all levels," the minister said.

"Jordan's water resources are very limited, but the government is doing all it can through the Ministry of Water and Irrigation, which has adopted a strategy to face the future needs," the minister added.

He said the strategy entailed continued search for new surface and underground resources, continued improvment of the management of available water resources, more economic exploitation of water, and improving the quality of treated water to be used for irrigation purposes.

At the same time, the ministry has adopted the so-called "water harvest" project, which aims at using to the full the rain water collected behined dams, according to the minister.

"The ministry this year allocated sufficient funds for the purchase of equipment to be used in the construction of dams to collect rain water," he added.

Referring to the coming summer, the minister said the minstry had set a distribution programme which will be announced soon.

Mr. al-Surur urged citizens to install sufficient tanks at home to save as much water as possible and to report to the Water Authority about emergencies related to water; he stressed the need to ration the water consumption.

Referring to the southern regions, which were affected by a rainstorm last month, the minister said that there would be some delay in the implementation of irrigation projects in the southern Jordan Valley region due to the difficulty in reaching some areas.

He said that work, which entails laying 47 kilometres of networks and cement canals, will eventually be carried out.

NEPAL

Massive Deforestation in Lowlands

BK2604130591 Hong Kong AFP in English 1006 GMT 26 Apr 91

[By Kedar Man Singh]

[Text] Kathmandu, April 26 (AFP)—Activists have caused massive destruction to forests in lowland tropical regions of Nepal during the year-long rule of Prime Minister Krishna Prasad Bhattarai's Coalition interim government, ecologists here said.

Historian and politician Dilli Raman Regmi said Friday that the forests had suffered more damage in one year under the country's interim government than during the 30-year partyless autocratic Panchayat rule.

He warned that unless Nepal adopted an afforestration programme and checked the destruction it would "face a grave ecological problem and plunge into a great natural calamity shortly."

A senior Forestry Ministry official told reporters that in the last year about 2,000,000 cubic feet (60,000 cubic metres) of timber worth 312.5 million dollars on the local market had been smuggled to India and 7,000 hectares (17,300 acres) of forest had been destroyed.

"The criminal forces started destroying the forest at a time when all the Nepalese are engaged in holding the country's historic general election for the multi-party parliamentary system of government," the official said.

Forestry Department Director General Indra Singh Thapa said Thursday that forests in the southeastern tropical districts of Jhapa, Sunsari, Sarlahi and Bara had suffered the worst damage.

Mobs including pro-leftist illegal settlers in the forest lands had mounted attacks recently against forestry security personnel in districts from Jhapa, located 390 kilometres (244 miles) southeast of Kathmandu, to Kapilvastu, 360 kilometres (224 miles) southwest of the capital, sources said.

"Because of the threat to the life of the forest security guards and other employees, 102 forestry department employees in Bara and eighteen in Kapilvastu have submitted their resignations en masse because of insecurity and mental tension", the official said.

The district forest security committees are ineffective because political party leaders and workers associated with them are busy with the campaign for Nepal's May 12 elections, he said.

The only way out to check the destruction was through the deployment of the army, ecologists said, adding that the few vandals caught had not received harsh enough punishments.

The country's forests "always suffered during the 30-year rule of the Panchayat system because in every election, the forest would be plundered and massively destroyed by the Panchayat activists," the sources said.

"Even during the 15 months of trade impasse with India when the supply of petroleum oil products was disrupted, about 200 hectares (500 acres) of forest were officially cleared daily for several months to meet the people's acute shortage of energy to cook their foods," a Forestry Department official said.

"The Kathmandu Valley itself was supplied with over 100 truck loads of wood daily to meet the shortage of the energy for several months between March and December 1990," the official said.

Minister Vorontsov on Environmental Agreement With U.S.

LD2304172791 Moscow World Service in English 2300 GMT 22 Apr 91

[Unidentified correspondent's report on signing of U.S.-USSR nature conservation memorandum in Moscow on 22 April, incorporating recorded remarks by Environmental Protection Agency Administrator William K. Reilly and Nikolay Vorontsov, USSR minister of nature management and nature conservation [title as received]; Vorontsov speaks in Russian with superimposed English translation]

[Excerpts] The Soviet Union and the United States have signed a memorandum on nature conservation. The ceremony took place in Moscow on Monday. The sides hope that it will start a new type of ecological cooperation. More from Radio Moscow's reporter:

[Unidentified Correspondent] The treaty was signed by the Minister of Nature Management and Nature Conservation, Nikolay Vorontsov, and the Director of the Environmental Protection Agency, William Reilly. Speaking at a news conference afterwards, the officials said that the memorandum provided for 55 joint projects, including a center for energy efficiency, a joint park in the area of the Bering Strait, and for raising environmental awareness. [passage omitted]

William Reilly says that the just-signed memorandum is a new stage of cooperation.

[Reilly] We have heretofore collaborated primarily on matters of research and study. We now look forward to undertaking a number of practical and specific action-oriented projects directed at solving real problems that both our countries share.

[Correspondent] Nikolay Vorontsov said that the Soviet Union had fallen behind other countries in terms of nature conservation and voiced the hope that the memorandum [would] prove helpful. He recalled that in defiance of requests from scientists the government denied the required support for nature conservation programmes in the forties and fifties. Scientists insisted on founding a special governmental agency responsible for nature conservation as early as that. Yet their idea materialized a mere three years ago. Nature Conservation Minister Vorontsov said that the Soviet Union had many problems and that American experience could prove useful in handling them.

[Vorontsov] The country is steering into a market economy at a time when any rules, restrictions, laws or fines, a system to regulate the relationships between humanity, industries, farming and nature is nonexistent.

[Correspondent] As they answered questions, the Soviet and American officials said that they still had no joint projects to fight oil well fires in Kuwait or decontaminate the Persian Gulf. However, both issues are going to be discussed in the future. [passage omitted]

The Soviet nature conservation minister condemned nuclear testing. He quoted computations by the late science authority Andrey Sakharov.

[Vorontsov] Ground nuclear testing has cost us six million lives. True, these casualties were extended over many years and occurred in various countries, so the figure is not as impressive as Chernobyl or Bhopal, but six million lives will be six million lives.

[Correspondent] Before visiting Moscow, the Director of the Environmental Protection Agency, William Reilly, visited Leningrad, situated on the Gulf of Finland. Several years ago, the city authorities began to build a dam in the gulf in a bid to protect the system from frequent and devastating floods. the project drew protests from the (word indistinct). Mr. Reilly joined his voice to the chorus of critics, saying that the Leningrad dam project was inadequate. The dam has upset the natural circulation of water and [?is fraught] with an ecological disaster. The American official criticized the condition of water in the city. He said that running water in the city was simply undrinkable. William Reilly offered the local authorities his agency's assistance.

[Reilly] We were very pleased to make available there a good bit of advice, computerized information, on how to manage drinking water—purification techniques, access to scientific information, specific people who are helpful on different aspects of the problem—and we look forward to helping set that up and to having a direct exchange with Leningrad as they go about addressing that various serious problem.

[Correspondent] And on Wednesday Mr. Reilly is to meet with representatives from nongovernmental nature conservation organizations.

National, Local Inaction on Environmental Priorities Criticized

91WN0369A Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 23 Feb 91 p 1

[Article by Viktor Dik: "The Kaynar Syndrome"]

[Text] **An awful story was revealed recently. A young boy lived in a village close to which nuclear bombs were tested. The people were removed from the village, and when they returned they found the wells filled in. One day this boy and his grandfather were clearing out a well and a soldier came to help. But the boy said: "Never come to our house." The soldier from the testing ground was the boy's father....**

Kaynar, Sarzhal, Karaaul, Dolon....These are villages that are within the 30-kilometer zone of the Semipalatinsk nuclear testing ground. A succession of nuclear weapons was tested almost continuously here for 40 years. The tests were on the ground and in the atmosphere during the first decade and a half. The functioning of all the vitally important organs of most of the people who have lived or are living here have been

adversely affected. The doctors have called the aggregate of clinical phenomena the Kaynar syndrome—for the name of the village where they were first observed.

"The Kaynar syndrome" is not simply a collection of illnesses. The Kaynar syndrome is a deadly horror. A horror that is transmitted genetically from generation to generation. And it is almost impossible to do anything about it. One third of the babies born here are either dead or are monsters. Religion and customs have not permitted the Kazakhs to kill themselves. Today suicide is a mark of the times. Impotence and other physical defects push people, primarily youth, to the limit.

An ecological conference in the United States comes to mind. The reaction of aged American professors—scientists with world-famous names—when they found out about the custom of Aral Sea Kazakhs of lowering a child's cradle into the grave along with the dead child is recalled. They were shaken, they had never known of such a thing. What is more, they knew from this that the increase in infant mortality from birth anomalies caused by genetic defects because of a worsening of the ecological balance had become a steady trend in Kazakhstan. Thus Goskomstat [State Committee for Statistics] has just recently "let the cat out of the bag": the proportion of congenital defects in the development of children less than a year old has grown 1.5-fold to 2-fold in the past 10-15 years.

Here is the arithmetic: half a percent there, half a percent here....

Is it horrible? It is to me, too. It is horrible that about 80 percent of the republic's population lives in an area of ecological crisis. This population breathes filthy air that is saturated with nitrous oxides and nonferrous metals and whatever gushes forth. Here the water is dirty on the verge of unsuitability for drinking, and the forests are withering. Farm products are polluted by nitrates, pesticides, and heavy metals.

Each day tens of thousands of people in the republic miss work because of sickness. All this is terrible, as is the recognition that the crisis itself will not melt away but will grow.

In essence, we have all become hostages every day of a powerful, invincible infrastructure of departments, main administrations, and the former ideology. This ideology, with its concept of a "rosy future," became almost the only criterion for life and the people's welfare. Strange as it may seem, the haze over the city, which obscures the sun (pictures of this type still decorate the halls of the Tretyakovskiy Gallery), was also considered a step toward a bright future and even an integral part of it. And so things were blackened with smoke.

The country is in ecological ruin. The state budget deficit is enormous. Each year we spend about 11.6 billion **rubles** for nature conservation, and this is about 1.7 percent of the gross national product.

In the United States, I found out, each year 70-80 billion **dollars** are spent on protecting the environment. And indeed it is well known that we need capital investment of at least three percent of the gross national product just to stabilize the situation and only with a five- percent contribution to nature can we hope for an improvement of its quality.

What is the actual practice? Actually a trend toward "one-shot" actions is noted. Multimillion-ruble injections can absorb ecological pains for a time, let us say, in that same Aral region. But subsidies, which are mighty in appearance, project only an image of dilettantes. These "rescue shots" do not in and of themselves bring any result, since they were not planned under specific active programs. And so it happens: in whatever amounts we throw money in bulk into the breech, the ecological monster, like "Derzhavin's old man," is soiled, ravenous, and howling....

Right now, while the Union government is undergoing structural changes, it is time for the republics themselves to solve their ecological problems. It would be correct, most likely, to delegate strictly defined ecological functions to the country's Cabinet/ministries along with economic functions. But indeed is that what is happening? A year ago the USSR Council of Ministers adopted a decree about increasing the output of consumer goods. And this minuscule subitem was included in this same decree at the very last moment it says, the shutdown of enterprises for ecological reasons is forbidden. Of course, there are not enough commodities and the counters are empty, but let us ask the people: do they want to pay for commodities with their own health? If it is considered that in some republics enterprises of Union subordination make up 70 or more percent of the total industry, then it is not difficult to see the hidden meaning of such a decision.

It turns out that no one in the field is empowered to close a harmful production facility. At the very least, even in the "laxness" of the various types of inspection, organs of the hydrometeorological service or the sanitation and epidemiology stations were able to take steps, and a model of monitoring had been worked out. But now everything is falling apart again....

It is plainer to say that not one of the unimpressive decrees of the higher authorities on nature conservation, beginning with the seventies, was carried out completely; most of them were not carried out at all. And so it happens that if all the rayon ecological disasters named in the USSR Supreme Soviet decree of 2 December 1989 were put on a map, there would be a vast territory on which all of Europe and a good half of Africa could be placed. Wastelands of this type caused by technology also cover Kazakhstan to a considerable extent.

But we did not know much and we still do not know much. We do not know what happened to the cattle that ate contaminated scrub of the Semipalatinsk testing ground. We did not figure out where a poisonous cloud

from the beryllium production facility of Ust-Kamenogorsk went. We are figuring out how, but we do not lift a finger, to save the forests of North Kazakhstan. We lull ourselves to sleep with the hope for a "good uncle" who can untie the knots of the Aral and the Balkhash with one stroke. Somehow this is, of course, the result of criminal concealment of the truth by the local influential persons concerned, who now pass by each other at their personal suburban Moscow country houses, with personal pensions or the expectancy of same while sitting in the soft armchairs of the ministries, concerns, and so on. But it looks as if this is our current state with regard to the "Kaynar syndrome"—the genetic horror beaten into us by the command-administration system.

Is it not time to see that without a splendid well-arranged ecology no economy of any kind can emerge? Theoretically what has happened can repeat itself. But such a thing is unlikely to happen in 10 years.

Ecological Union Head Seeks Industrial Development Cooperation

91WN0334B Moscow TRUD in Russian 26 Feb 91 p 2

[Article by Doctor of Biological Sciences N. Reymers, president of the USSR Ecological Union and the Nature Use Federation: "Do the 'Greens' Want War?"

[Text] It was quite acceptable to bring the indictment; and without a hearing. And it is not a question of, to quote Old Krylov, "looking at yourself instead" [I. Krylov, "The Mirror and the Monkey"—1816]. It is very convenient to cast one's own economic sins onto the "Greens." If there is a breakdown in the chemical industry, the Greens are to blame—and they close the enterprises. If there are neither woolen nor cotton fabrics, once again, the Greens are interfering—they are blocking the production of dyes. If there is a crash in agriculture, it's those Greens interfering again—they spoke out against the BVK [protein-vitamin concentrate], and are criticizing the use of mineral fertilizers and pesticides. And if they have difficulty heating buildings in Moscow, it's as plain as day: the Greens have blocked the construction of the Northern TETs [heat and power station]... They are extremists; they are ignoramuses. We, the industrialists, are doing such a great deal; we are working so zealously to improve the environment in which we live—and they—they just keep interfering. And is it not a shame that there are not even any plain, untinted fabrics; that BVK and agriculture are as alike as meters and pounds; that the power engineers are promising to freeze the Muscovites next winter, when at the very same time the Northern TETs should be built in only a few years...

But after all, the sensible Greens are not at all speaking out against industry per se, but are merely opposed to the harmful consequences of its activities. As world practice demonstrates, the consequences are altogether eradicable. If, of course, one has the will to do so. But that is precisely what is lacking among the "technocrats." Doubtless, there are extremists among the Greens. And scarcely all their proposals are acceptable. For example, there is no way one can grasp why all the dams at GES's [hydro-electric power plants] along the Volga must be blown up, and that all AES's [nuclear electric power plants] must be immediately shut down, without exception. Certain of their recommendations are useful, but it is not possible to implement them in the short run; for example, to halt the use of pesticides within a year, or two years... Quiet, businesslike dialogue is what is needed. But when on the one hand you have bottomless emotion, bordering on hysteria; and on the other, a wall of technocratic obtuseness—you will not get to the heart of the matter.

The USSR Ecological Union is an organization which has from the very beginning focused on positive solutions to the problems. Thus far it has not spoken out against any one project, except for those which are clearly destructive and extremely harmful—such as water transfer canals and the production of protein-vitamin concentrates (BVK [belkovo-vitaminye kontsentraty]). The nation's legislative authorities have spoken out unequivocally on both questions. In any rule-of-law state, the executive authorities are obliged to carry out the decisions of the parliament. And the fact that, after adoption of a decision, some of them continue to dally seems very, very strange. The law is strict, but it is the law. Failure to comply with it is a crime. The "technocrats" cannot seem to grasp this at all, being accustomed to a monopoly on the truth, were it only the "truth." The habit of, "I'll do what I like," prevents peaceful dialogue even with environmental protectionists like the USSR Ecological Union [Ekosoyuz], which firmly subscribes to the Golden Rule, "Do no harm."

One would think that the truth lies somewhere between the two extremes. But no, there is a problem between them. And the first question to the disputing sides arises automatically: who stands to gain? The Greens are accused of trying to reap political capital. You have to admit: it happens sometimes. But this capital is ephemeral. As far as tangible gains are concerned, as a rule the Greens only lose. They are not demanding bread, but health; not prizes and medals, but life for themselves and their children, and incidentally, the children of their opponents. The usual thesis of the "technocrats" is, if you do not let us build the canal—there will be no irrigated lands, and consequently no food; if you do not let us build the Northern TETs, you will not have any heat. It all seems very logical. But this logic is overwrought. It originates with the presumption of no other alternative. The "technocrat" thinks that one can do only that which he knows about and knows how to do. For him there is no other way.

The fact of the matter is, there may be various ways of reaching the goal. Free land reclamation is not the only method of increasing crop yield; and construction of a new TETs requires even more funds than energy-conserving modernization of industry and housing. If

there is no soap, no dyes or other chemical products somewhere, it is not the Greens who are to blame, who insisted on shutting down the only monopoly enterprise in the country, which was, by the way—a dirty one. The guilty parties are the ones who have blown away huge sums for implementing unnecessary and even harmful projects; the ones who did not build a new "clean" chemical plant, and moreover not just one, but several, thereby eliminating the monopoly.

Our ecological situation is among the worst. This cannot but have an effect on the economy and sociopolitical wellbeing. The agony of the Aral is followed by the ecological shock of the entire Aral Basin. And the situation is no better in the Azov-Black Sea Basin, in the White and Barents Seas, in the Volga-Caspian system, and in the rivers of Siberia and the Far East. Matters are poor with the living environment in the majority of the cities; the chernozems are being exhausted, and the forests used up; and the low technological standards have made the atomic power stations, petroleum refineries, oil and gas pipelines, and even the railroads and Aeroflot—dangerous. Now put all this together—with the stresses of total lack of goods. The down-escalator of ecological disaster is descending even faster than we are able to climb it with our collapsing economy. According to estimates, the current ecological damage en total is almost equal to the gross national product.

It seems clear that we can no longer live this way. But just any confrontation is not the best way of solving the problem. And that includes war between the Greens and the "technocrats." In order to avoid it, good will is required on both sides, as well as the prerequisites for mutual understanding.

Specifically, an "ecological" market is required—extensive production and supply of environmental-protection technologies, instruments and equipment. The primary use would be to improve economic profits and expand the range of goods; the second is the renewal of capital and the rise of a new sphere of activity, which would forestall unemployment. But the main thing is the restoration of the environment and the people's health. After all, ecology is medicine for nature, and hygiene for man.

New generations of highly-productive and wholly competitive resource-conserving and environment-protecting equipment and technology, and "ecologized" economic complexes—these are the technical tasks for the "technocrats." They must create "ecological technology"—purification plants, control instruments, and the like. And you will see normal tractors going out into the fields, and not the monsters which burn vast amounts of fuel and crush the earth so badly that it ceases to produce. If one would just look, one would conclude that all our urban construction is murderous to man, and extravagantly wasteful. We have, you see, the most material-consuming and heavy, and the most crowded homes in Europe... But over there the by-products of the economy will be drawn into the production cycle, and will provide revenues. There is room here everywhere for entrepreneurial activity. We need only to make a beginning.

As a rule, there are always alternatives. The market assures them. Administrative regulation, if it is judicious, will speed up the course of the processes. However, we must not be passive. Otherwise, the phenomenon of "unrestrained capitalism" will overwhelm us. Above all, we need normatives—including ecological normatives. And these are virtually laws. Legal procedure strengthens the good normatives. But only if there are mechanisms of "introduction" for this. In the capitalist world, the administration sets the ecological task. The entrepreneur declares that it is impossible to fulfill, and...fulfills it. The legislators do not care where he gets the funds and the "brains" for this. If he does not fulfill it, he will bear strict responsibility: taxes, and fines, and even prison.

The cause of protecting the environment requires initiative. The USSR Ecological Union has tried to take the first step in this direction. Along with a group of ecologically-oriented enterprises and organizations, it has founded a commercial association called the Natural Resource Use [Prirodopolzovaniye] Federation. Positive programs cannot be carried out alone: combined efforts are required. The federation plans to create a reliable system of multi-faceted ecological and ecological-commercial information—about clients, subcontractors, engineers, raw-material markets (especially—secondary) and sales, and about specialists. It also plans to organize, in time, a commercial ecological bank and a special-purpose fund; and to carry out a number of top-priority projects, including education.

Our federation is merely the "null cycle." If the "technocrats" are genuinely interested in restoring the ecological health of their enterprises, they can take an active part in the federation's undertakings. The Greens do not want "war." We must work together for the sake of the country's wellbeing. Mutual understanding will help find the way to a decent and happy future. And there are no alternatives for this.

Yablokov Proposes 'Ecological Security Agency' Within KGB

LD1204140891 Moscow TASS in English 1212 GMT 12 Apr 91

[Text] Moscow April 12 TASS—Aleksey Yablokov, deputy chairman of the Soviet parliamentary committee for ecology and a corresponding member of the Soviet Academy of Sciences, favours the establishment of an ecological security agency within the framework of the State Security Committee (KGB) system which undergoes renewal.

As of today the most terrible danger facing the Soviet Union is ecological, not a military one at all, Yablokov told KOMSOMOLSKAYA PRAVDA. This is why the

KGB should primarily pay attention to the disastrous ecological situation in the Soviet Union and to the health of Soviet citizens.

Yablokov, former chairman of the soviet branch of the international Greenpeace organisation, believes that it is essential to urgently set up an ecological security agency with a powerful financial and technical support.

It could prevent the penetration of "dirty" technologies into the country during the conclusion of international contracts. Quite a number of "ecological imperialists" try to impose technology the manufacture of which is banned in many countries, the scientist stated.

He recalled that the KGB had already uncovered a whole number of instances of the smuggling of valuable raw materials under the guise of industrial waste out of the country. It is necessary to immediately put a stop to all attempts at embezzling property of the whole people.

Yablokov pointed out the need to constantly monitor the development of new production processes and technologies in the world to know all about their ecological security.

Scientist on Control, Dangers, Benefits of Pesticide Use

91WN0367B Minsk BELORUSSKAYA NIVA in Russian 22 Mar 91 p 3

[Interview with Yevgeniy Vitalyevich Kharchenko, candidate of biological sciences and head of the Belorussian Toxicology Laboratory of the All-Union Institute of Plant Protection, by BELORUSSKAYA NIVA special correspondent V. Nilolaychuk under the rubric: "Timely Interview"; time, place, and date not specified]

[Text] **Unfortunately, in our agriculture today, in the opinion of the head of the Belorussian Toxicology Laboratory of the All-Union Institute of Plant Protection, Candidate of Biological Sciences Ye.V. Kharchenko, poison is really a blessing, because there is as yet no alternative in the country to chemical means for protecting plants. V. Nikolaychuk, BELORUSSKAYA NIVA special correspondent, talks with Yevgeniy Vitalyevich.**

[Nikolaychuk] But first, however, Yevgeniy Vitalyevich, let us outline the set of problems which your laboratory is working on.

[Kharchenko] It is one of 28, so to speak, peripheral parts of our head institute, which is in Leningrad. And we are working on experimenting with new domestic and foreign types of pesticides for later registration in our country. For the most part they are chemical means for protecting plants from weeds, pests, disease, and, to a certain extent, growth regulators. We evaluate their biological activism and determine the optimal application norms and the application rates. At the same time, along with the country's sanitary and other scientific institutions (VNIIGINTOKSom [All-Union Scientific Institute of Hygiene and Toxins] and the Belorussian Scientific Institute of Sanitation and Hygiene, for example), we are monitoring the dynamics of residues of chemicals in the soil, ground waters, agricultural crops, air, and so on and their impact on other objects of the environment. A chemical is presented for registration in the USSR on the basis of this multifactor toxological dossier and the healthful use regulations formulated.

The main result of this work and the work of our colleagues is this extensive "List of Chemical and Biological Means To Fight Against Pests, Weeds, Diseases, and Growth Regulators of Plants Permitted for Use in USSR Agriculture." It was compiled for the 1990s. But additions and refinements are introduced into the list for each particular year. You yourself understand that it is simply impossible to republish an entire book in full and send it throughout the country efficiently, and at your own cost too.

[Nikolaychuk] Does what you have said mean that all chemical compounds used in our agriculture are retested every year? And does there exist any system at all for controlling chemicals registered earlier?

[Kharchenko] No, we do not practice such compulsory retesting of chemicals registered earlier unless there are complaints from the sanitary or ecological services, for example from medical workers, the nature protection service office, veterinarians, the "Greens," the fisheries protection agency, and the like. But if such a signal comes in, the chemical is certainly retested.

[Nikolaychuk] Does your laboratory have its own experimental fields?

[Kharchenko] No, we do not have and as far as I know never have had such fields. We rent them from the republic's farms. Anticipating a possible question, allow me to stress that in general the managers meet us half-way, because obviously they understand that we are working above all for their benefit. But, of course, there are complications. In principle no landlord wants to risk his crops and his land, even if we pay good money to rent it. And such a risk naturally does exist.

[Nikolaychuk] In that case where does the output grown go? Is there a guarantee that it will not end up on our table? If you recall instances when in pursuit of plans and profits certain managers plant and mow even in the 30-kilometer Chernobyl zone, the question by no means seems an idle one.

[Kharchenko] All output obtained from the experimental fields is confiscated and not used for food needs. We make sure of that. However, as they say, only God can give a 100-percent guarantee. So, although I have no examples where the output from our fields went to store counters, I would still not undertake to rule out such a thing absolutely. Especially now, when our social production is being changed to the pragmatic course of market relations, without our having any sophistication in these relations.

But I would still like to reassure your readers a little; none of the chemicals tested by us are absolutely new and completely untested. Before they reach our fields, they undergo both a scientific expert panel review and laboratory testing. And, in addition, as a rule the imported chemicals we test must be registered somewhere already.

[Nikolaychuk] But then why are there cases when a chemical being tested not only destroys the crops, but sometimes takes the fields out of crop rotation altogether? At least you hear about such cases. And, the well-known decree of the USSR Supreme Soviet: "On Emergency Measures for Ecological Normalization of the Country" states that "millions of hectares of once-fertile land have been withdrawn from agricultural turnover. It is dangerous to use some of the food products for food because they are full of pesticides, nitrates, and radionuclides."

[Kharchenko] I can only confirm that, unfortunately, such cases do occur, and not so very rarely. To illustrate, several years ago after flax fields in various oblasts of the republic had been treated with the herbicide "Glin," made by the American firm Dupont, row crops were not planted on these fields at all for two years because of the strong residual herbicide effect. But it was not the chemical itself which was to blame for this; according to our data and the data of our colleagues, the chemical was quite promising because of its high effectiveness and small dosages required. The negative results in this case were the result of flagrant violations of the technology of its application, in particular, substantially higher application norms.

Such cases expose not only our economic irresponsibility and neglect, but also our technical backwardness. The sprayers which exist in our country are very primitive. True, when we are speaking of applying four-six liters of chemical per hectare, excess application of 0.5-1 liter is not so very dangerous. But applying 20 grams of chemical instead of 10 is already double the dosage, which may have serious consequences. The "Glin" mentioned was in fact one of the first chemicals with such a very small recommended dosage, which our equipment was simply unable to follow strictly. And if you add to that our national custom of doing everything by eye, approximately, and adding on a little more "just in case," then the picture is certainly not a happy one.

Incidentally, it was precisely these instances which forced us to take up predicting the possible negative situations if the technology was violated or the chemicals with a very strong biological effect were handled improperly (using higher dosages, changing application times, using tank mixtures, and the like), in order to develop recommendations on eliminating potential negative ecological consequences. At the present time data is being gathered and in the future we plan to set up models for predicting situations on a computer.

[Nikolaychuk] But still, Yevgeniy Vitalyevich, doesn't the example you cited strengthen the common opinion that the West is selling us output and technology, herbicides included, which are banned from use in their own countries? According to the principle: "Here, Lord, you can have what's not fit for us." And in that connection: to what degree do the sanitary norms regarding herbicides which exist in our country conform to foreign analogues?

[Kharchenko] Allow me to start at the end. No matter how paradoxical it may seem, in the USSR these norms are quite rigorous. And if a chemical is registered in our country, it is highly rated throughout the world. It is possible that this is just the case where the bureaucracy has had some benefit. While the chemical was gathering the official stamps from numerous houses and offices, like it or not, it had to be worked into condition. This is unlike the West, where people try to put a promising pesticide into production, even if just experimental, right off.

And now, about the quality of the output being bought in the West. Allow me to assure you once again that we do not buy chemicals known to be harmful. Because not one of them can be bought at all until it is tested and registered in the USSR. As I hope you understand, that is precisely what we are doing. We receive samples of a chemical for testing free of charge, by the way.

However, it would be naive to assume that all the means to protect plants that we buy abroad are the very latest, although the concepts "old" and "new" in this case tell you practically nothing. The main indicators in regard to means of protection are their effectiveness, safety, economy, and the like. And if today we are buying chemicals which are not always the best, it is not the West but rather we ourselves who are to blame for it. First, it is not the managers who are involved in the purchases but our businessmen, and they do not always know how to do business in a civilized manner and, to put it crudely, sometimes don't give a damn about the quality of the output they are buying. Secondly, we are still not rich enough to buy the best of everything, because the best of everything is correspondingly expensive. And, sorry to say, thirdly, beggars can't be choosers when there is an altogether enormous shortage of means to protect plants in the country, and so their quantity rather than their quality becomes paramount. The principle "better cheaper but more" operates.

[Nikolaychuk] The principle is really dangerous, especially if we consider that frequently local areas operate on those standards too. Incidentally, do you monitor compliance with the technology for working with plant protection means? And just how effective is the monitoring which now exists?

[Kharchenko] Monitoring compliance with the norms and regulations of herbicide application is not part of our duties, and in fact physically we are unable to be involved in monitoring functions. For we test only 30-40

pesticides a year. In keeping with the practice which has become established, the plant protection offices are involved in monitoring. How effective is it? Inadequate, of course. And there are objective reasons for that: the almost universal lack of internal plant protection offices at farms and subordination of such services until recently to "Selkhozkhimiya" [Agricultural Chemicals], whose departmental interests did not always coincide with efficiency; the poor physical facilities of existing offices; and the like. This monitoring can only be considered really effective when specialists of the plant protection office are able to take not only each farm in the republic under their supervision but also each particular field and each hectare of it. But, alas, we have a long way to go to reach that point.

Incidentally, the changes occurring in the countryside intensify this concern even more. Most of the newfledged farmers do not have elementary agricultural education, not to mention special education. To illustrate, in prosperous Switzerland, even after inheriting a farm a person has no right to manage it without having the necessary knowledge and appropriate clearance. In our country anyone who wants can work on the land.

[Nikolaychuk] But still, Yevgeniy Vitalyevich, no matter how hard we try to convince people that poisons are a blessing, it is difficult for them to reconcile themselves to it. Especially the Belorussians, who are taking a risk even when they put a berry from their own garden into their mouths because of the Chernobyl disaster. Do you take into account the consequences of Chernobyl in your work?

[Kharchenko] For the time being, unfortunately, our laboratory is not working directly on analyzing the impact of radiation on the behavior of the pesticides we test. Nor have we been involved in preparing a list of chemicals permitted for use on lands contaminated with radiation. However, this problem seems very urgent to me, as a scientist. It is already known, for example, that radiation and pesticide effects can be interconnected, since radiation, which affects the conversion of chemicals in the plant, is sometimes able to produce very aggressive products of decomposition of pesticides with consequences that are for now unpredictable.

In general, this problem still has not been adequately studied. And since effective management of agriculture today is impossible without the use of pesticides, it is not advisable to risk using contaminated lands for growing food products at all. It is better to manage the clear areas that we have now more efficiently. Even though, as everyone knows, this position always arouses controversy in scientific circles.

[Nikolaychuk] But does the advisability of further chemicalization of agriculture cause less controversy? The mass information media cite quite a few examples from the West which prove that there a course has been taken toward biological methods of plant protection. How do matters stand in that direction in our country? And aren't you afraid of being left unemployed in connection with the turn in public opinion?

[Kharchenko] No, I'm not afraid. For now there is no alternative to chemical means of plant protection either in our country or in the world; and, I'm certain, there won't be in at least the foreseeable future. The biological method has not yet been formulated theoretically and practically in the volume and scale needed to compete on equal terms with the chemical method. To illustrate, in our country the number of types of biological compounds can be counted literally on your fingers. Of course, among them are quite effective ones, but they are more demanding with respect to storage and use conditions, more labor intensive and more expensive, require higher technology of production, and so on. That is, everything relies on the economy. For if we cannot produce even chemicals in the necessary quantities and if we have no way to apply them and nowhere to store them, then to speak of biological compounds...

As for public opinion, it is not always objective. In principle any medicine is also a poison, if it is used improperly. Nonetheless, I consider any criticism useful. The plant protection service office has long been in need of society's attention and help.

Attempts at Local Control of Ocean Resource Exploitation Criticized

91WN0367A Moscow PRAVDA in Russian 4 Apr 91 First Edition p 2

[Article by A. Kolodkin, president of the Soviet Association of Maritime Law and doctor of juridical sciences, P. Moiseyev, doctor of biological sciences, V. Zilanov, candidate of biological sciences, and A. Vylegzhanin, candidate of juridical sciences, under the rubric: "Economic Panorama: Don't Tear the Sea to Pieces: How To Handle the Country's Bioresources Efficiently"]

[Text] The new constitutions of some Union republics declare waters, the continental shelf, and natural resources the exclusive state property of the republics. But the Ispolkom of the Kamchatka Oblast Soviet of People's Deputies took an even more radical step in March of last year. We are talking of a 200-mile economic zone—the peninsula. That's right—not a country, a republic, or even an oblast, but simply the peninsula.

One cannot fail to be alarmed at such a "new approach," the essence of which is repudiation of the USSR's sovereign rights to living resources in the economic zone and on the continental shelf and the inclination to divide these regions up piecemeal.

On the surface this approach seems to fit harmoniously into the process of expanding people's power locally. Moreover, it is to a certain degree a reaction to the serious mistakes made in the past in the matter of preserving stocks of certain types of fish and marine life on the USSR coasts, for example on the Kamchatka coast and in the Bering Sea. But will the proposed way of

breaking up the sovereign rights of the USSR be a panacea for preventing previous mistakes? Is it not fraught with even more serious dangers?

One of the natural characteristics of fish, marine life, and other marine living resources is their mobility. Many species are capable of moving great distances. In order to utilize their stocks rationally, an integrated system of preservation is necessary throughout the entire habitation range, a system which includes measures to regulate industry. What will happen if now-integrated sovereign rights regarding bioresources of the economic zone of the USSR are handed over to local structures? The local organ is accustomed to managing the bioresources in a particular part of the economic zone; to determining the size of the permissible fishing catch, for example.

Will there be scientifically correlated measures adopted in several neighboring sections? Hardly. For each republic, kray, or oblast organ of power represents above all the interests of the people of its own territory. If, let us say, only immature fish live in the maritime region of a particular territory but they become mature in the neighbors' territory, it will be very difficult for the local organ to prohibit taking this kind of fish in its own "piece" just so the catch increases in the neighboring "piece." But not prohibiting it will have catastrophic consequences for the bioresources of the basin as a whole, considering the natural interrelationships in nature.

And here is another important consideration: from the standpoint of Soviet law, the USSR's rights over the resources of the USSR economic zone are realized to the benefit of all Union republics. This principle of equality would be violated if the rights to the resources distributed around the sections of the USSR economic zone were extended only to certain Union republics with sea coasts. The interests of the Union republics without access to the sea would be infringed upon. How are these problems being resolved in world practice? In maritime state-federations (the states in the United States, the provinces and territories in Canada, the states and territories in Australia, and so on), the federal organs rather than the state formations which make up the federation have the exclusive rights to the bioresources of the economic zones. In large coastal countries which are unitary states, these sovereign rights are also assigned to the jurisdiction of the central organs of power and management, but not to the local ones (prefectures and districts in Japan, provinces and autonomous regions in China, and so on). The 12 EEC member countries have handed over their sovereign rights to living resources and the formulation and implementation of a uniform fishing policy to a single organ—the department of fishing in the executive organ of the EEC. In the international arena only the EEC organ acts alone on behalf of the EEC member countries on issues of fishing policy. This integrated orientation contains the logic of more meaningful consideration by the international community of the diverse relations among living nature in the Pacific Ocean. But it is proposed to us to move backwards and tear the sea into "pieces." That's foolish!

We must not fail to note the fact that neither the economic zone nor the continental shelf is part of the territory of any state, the USSR included, and certainly not of its republics, krays, or oblasts. In light of that and in accordance with international law, the Soviet Union has sovereign rights only for the purposes of exploring and exploiting the natural wealth of these regions and has jurisidiction for the restricted purposes precisely enumerated in the 1982 UN Convention on Maritime Law.

Gorbachev Appeals for Support for WHO Chernobyl Program

LD2504193191 Moscow TASS in English 1917 GMT 25 Apr 91

[Text] Moscow April 25 TASS—Follows the text of the appeal of Soviet President Mikhail Gorbachev to governments of all countries and to the world public, which was issued today:

"The Chernobyl tragedy has not become a thing of the past. Its scope, the time it is going to take and consequences are such that the humanity is just beginning to realise fully the global nature of social, medical and psychological problems created by this catastrophe.

"During the five years that have elapsed since the accident, the Soviet Union increased many times over the efforts directed at alleviating its consequences. They are concentrated within the framework of a single federal-republican programme of urgent measures, which includes corresponding programmes of Russia, the Ukraine and Belorussia.

"During the past five years it became evident that the efficiency of the struggle against the consequences of the catastrophe can be dramatically increased, if many countries pool their efforts. We are grateful to the United Nations Organisations and its Secretary-General Mr. Perez de Cuellar for a broad discussion of international participation in the solution of the Chernobyl problems, and we highly appreciate the concrete steps that followed the discussion. In accordance with the resolution of the 45th UN General Assembly session, the UN Coordinating Committee for Chernobyl was created. It has already started active work.

"We highly appreciate the efforts of the World Health Organisation (WHO) and its Director General Dr. Hiroshi Nakajima for working out a global long-term international WHO programme for the study of medical aspects of the Chernobyl accident, as well as for creating in the USSR a WHO international centre to study radiation medical problems.

"The Soviet Union, which is attaching much importance to this highly humane initiative, is rendering and will continue to render moral and material support to it. The future of the programme depends to a considerable extent on international cooperation, the pooling of

efforts, experience and knowledge of scientists and specialists, as well as of materials resources of many countries. This is why I urge governments of all countries, international, national and public organisations, all people of goodwill to take intellectual and financial participation in the international programme, implemented under the aegis of the World Health Organisation. The results of the programme will be used in the interests of the whole of humanity."

Team in Chernobyl 'Sarcophagus' Continues Work

91WN0356A Moscow TRUD in Russian 4 Apr 91 p 2

[Article by TRUD correspondent M. Yurchenko: "The Stalkers of Chernobyl: A Unique Team Is Working in the Sarcophagus of the Damaged Nuclear Power Station"]

[Text] Kharkov—**In all ages it has been considered sacrilege to disturb the calm of a sarcophagus. In this sarcophagus, we live, people come here everyday... But, you ask, why? The question is of concern not only for those who work there, but, let us admit it, for ourselves: Does this not mean that they are protecting us against some kind of threat?**

Those traveling with me in the sleeping compartment were shy.

"So, lad, are you radioactive?"

Kobzar dissuaded him of this. But the bookkeeper hurriedly moved off to another compartment, and the officer spent the entire night smoking in the distant lobby. "Avoiding me like a leper." But there were no insults. "Chernobyl" is something cursed for people. Henceforth I decided not to be so frank.

In the morning the express train left from Kiev bound for Kharkov. For the past three-and-a-half years Yu. Kobzar has been traveling home from his work by train. For home leave. Each time he has brought with him a video cassette—a copy of the footage shot in the sarcophagus. Finally he showed his wife, Alesa, what his job was. She could also make no sense of why he was putting himself at risk.

And indeed, who does? Along with the Kobzar couple I watched the film and listened to the commentaries and the responses to my prejudiced questions. And all for just one purpose, namely, to find proof that the presence of people in the Chernobyl sarcophagus is at a minimum unnecessary.

The film does not impress the admirers of heart-piercing subjects. Nor can one find any artistic merit in it. It is purely technical footage. Data from a unique video reconnaissance, if you will.

...In the darkness of the sarcophagus there is uniform ruin. Fragments from a panorama of the chaos that has reigned since the explosion. People can sometimes be seen in silver protective suits and respirators, with their boots and helmets. They move about hurriedly. But only fast enough not to stumble and break their necks. Their entire route is a fight to get through the obstructions...

And it is boring to watch if you are not aware that the drama of the film lies in the fact that the investigators are operating in a zone of hard radiation.

"There, that is me—a 'fiver'—five roentgens per hour. Two steps away the level is 50. Below, where the light is shining, it is 400..."

There is a heap of fuel rods there—the heat-emitting elements of the destroyed reactor. They contain uranium dioxide. The position of the fuel rods must be recorded. And so Yuriy stopped taking the pictures.

"So perhaps your fellow travelers on the train had no cause for apprehension?"

"Of course not. Just look at a school physics textbook: gamma radiation—hard radiation—passes right through. But it does not 'settle' in the body. With the dust it is more complicated. God forbid it should be brought outside the sarcophagus, even less breathed. But the suits and respirators prevent that. They are like disposable syringes. You come back from a trek, take them off, and dump them with the radioactive waste. Then you take a shower. Along the road to the apartments in Chernobyl there is cascade of dosimeter monitors. So that by the time you get back 'home' you are 'clean.'"

"Always?"

"It does happen that we carry in 'contraband.' When this happens a dosimeter team goes through our quarters while we are at work. Once I returned home and there was a hole the size of a frying pan in the upholstery of the sofa. It was later explained that they had found a dust particle. Sometimes they have to throw out the furniture and clothing and footwear..."

"Yura, why do you go into the sarcophagus? They have covered the ruins, why not let them 'burn themselves out?'"

"Can we really talk about radiation safety without knowing where the sources of radiation are and what is happening to the residues of the construction structures? Our special comprehensive expedition from the Institute of Nuclear Physics imeni Kurchatov was set up in order to know this, and also in order to conduct scientific experiments in the sarcophagus."

The volcanic explosion hurled only four percent of the radioactive material out of the reactor. About 170 tons remain beneath the roof of the "cover" unit. That is what the sarcophagus is officially called.

Researchers are suggesting that these tons are mainly in the space beneath the reactor. In order to find them it is necessary to feel one's way through passageways and

corridors and holes, and drill through the reinforced concrete walls of the containment section and the concrete poured into the premises...

"Yura, last summer there were rumors that there had been a radioactive excursion in the No. 4 unit."

"Crazy. Under present conditions a spontaneous chain reaction is impossible. True, there was an insignificant increase in the flow of particles but it was immediately 'suppressed' by a special damping compound... As always, the rumors made a mountain out of a molehill."

The structures used to build the sarcophagus are a subject of special concern for the watchers. They are being destroyed here particularly quickly by time, moisture, and radiation. The film showed numerous cracks in the load-bearing structures. In plain language, they are holding up the slabs of the ceiling and the rubble from them. One of the mysteries of the explosion is the slab beneath the reactor, the so-called "E" scheme. Here it has been named Elena. The "girl" weighs 3,000 tons. The explosion tossed it up in an inconceivable way, turning it vertical. However, it did not fall back; it froze in what is a totally unimaginable way for it, resting on its edges. It has nothing beneath it to support it. What is holding it? And how reliably? How long will it hang there? It still has not been possible to clarify this.

In addition, thousands of tons of sand thrown from helicopters when the fire was being extinguished, are pressing down on the structures. And around that are ground cement and concrete. If there is a collapse, the dust will rise in columns.

The sarcophagus is far from being hermetically sealed. The area of the walls and roof is hundreds of square meters, and the film recorded this many times. How much radioactive dust is being pushed out by drafts? In which direction, and what will be the wind velocity at the moment of a buildup of dust? And what will be the consequence?

Preventive measures? Special teams are pouring concrete beneath the sinking structures. Sometimes the men themselves place rocks or logs beneath them. A dust-suppression system has been installed in the sarcophagus. From time to time a binding agent is poured into the ruins. But this does not provide a 100-percent guarantee of safety. The "skin" soon becomes brittle and crumbles. In addition, the system is switched on by pushing a button. Will anyone be close by when it is needed?

It is also necessary to make provision for the improbable—an earthquake. Although, why improbable? Let me remind you of the latest jolt in Romania and the wave that rolled into the Ukraine. Can there be any doubt that even a small earthquake will lead to movement of the rubble? And will the sarcophagus withstand it?

In short, the sarcophagus must be closely watched by many eyes. And not just the ruins.

Within the ruins there are plutonium, uranium, cesium, strontium. Natural decay of the plutonium has produced americium-241. This is a very powerful carcinogen that is mobile and soluble, and so even five years after the explosion, extreme and unremitting attention must be paid to it.

There has been another discovery. Yellow crystals of unearthly beauty have been found—uranium carbon compounds. They dissolve readily (there is plenty of water in the sarcophagus) and migrate into the space beneath the reactor and accumulate there. And what will be the consequences of the formation of these deposits? No exhaustive answers have yet been found for these questions.

Well, what about robots? There they are, in the film. Let them take on the function of observers. A mobile robot the size of large toy, something like the lunokhod vehicle, crawls along the passageway toward a wall and then uncovers a drill and starts to bore into the concrete wall...

"I hope the designers will not be annoyed," is Yu. Kobzar's comment. "But all of this is nothing more than odd things made by the young technicians club. They are unsuitable for serious work. A more or less flat area within the sarcophagus is required to start the robot operating, and there are not many such areas there. The machine cannot move around obstructions independently. And in fact, it never has been used. The most efficient all-terrain vehicle here is man, and the best tool is his hands."

Yes, without people, nothing would get done here. But another question arises: Will there be a change of shift? The researchers at Chernobyl work right there in the sarcophagus. Three to five years in that hell. There are not many of them.

About 200 people are allowed to enter the sarcophagus. However, the radioactive ruins are the main place of work only for the men from the laboratory where they are studying the fuel and making video observations. How much radiation they have "taken in the chest," as they say here, can only be guessed.

"But it is inadvisable to replace us," Yuriy explains. "We know by heart all the pathways and exits, how much each heap and obstruction and crack 'glows.' We have acquired the skill of hiding ourselves from the strong radiation. Sometimes the radiation reading on the dosimeters goes off the scale, but we can tell by the speed with which the needle is deflected the degree of danger, and have learned how to react. If new people are brought in they will 'accumulate' a maximum dose in the first days."

"But each of you has the right to leave this work, even demand that you be released, is this not so?"

"Of course. But we do not want to. It is both simple and complicated to explain why. The sarcophagus has a kind

of attraction that is almost a sickness. I admit that I am a sober-thinking person; the word 'romantic' irritates me, so you must not take what I say as a display of emotion. The sarcophagus is a special planet inhabited by special people. There, even the air is different. In the chaos of its ruins it has its own law-governed patterns, its own fascination. We are doing work that is perhaps unique in the world, in history.

"In order to understand all this it is necessary to be inside our skins. I cannot imagine returning to my previous post at the physicotechnical institute, carrying paper around and wearing out the soles of my shoes walking about corridors. What will replace the feeling that I get when I have found a crystal that grows only under conditions of radiation? Do you remember how in the Disney cartoons a stream of water flowing from a faucet used to freeze? The only other place that can happen is perhaps in the sarcophagus: lava that had flowed out of the mouths of pipes that for some reason had not melted. There are secrets and mysteries here..."

"Forgive me, Yuriy, but is all this worth your health? Or is the pay so good that you don't give a damn for anything else in the world?"

"I do not know whether you could call pay of R1,000 a reason for us. We get the same as those who are working just 20 versts away from the sarcophagus—in Chernobyl. According to our yardstick, Chernobyl is a clean zone... The difference in recompense is only that on days when we work in the No. 4 unit, they give us coupons for free food up to the value of 75 kopeks..."

"Yuriy, I do not doubt that the radiation safety rules establish a maximum permissible norm for both total and one-time radiation doses. Do you manage to 'stay inside them?'"

"Not always. Sometimes we receive much more. During a recent sortie into the reactor shaft—the first—we 'took' about seven or eight times the annual norm."

"When you descended could you foresee that something like that might happen?"

"When we are working out a route we always try to move in such a way as to avoid excess doses. We are not crazy. However, it is impossible to foresee everything. Sometimes we deliberately stay in a field of strong radiation for a few extra seconds if we need to catch an important detail on film.

"And sometimes quite unexpected situations arise. We were drilling in a concrete wall in a place not yet well known. We were trying to retrieve the drill from the hole but it would not budge. We jerked it a little harder. A piece of a fuel element was dragged through along with the bit, right there at our feet. The needles on the dosimeters leapt to the right.

"A decision had to be made instantly. I stood in a circle of drillers and 'partisans' (that is what the old hands at the sarcophagus call the clean-up people enlisted by the military recruitment office). It would have been possible, of course, for everyone to form a chain and pass the fragment along, as if on a conveyer belt, and remove it to a distance. But the boys are not pledged to risk themselves, and I must not expose them to radiation. I did something else. I threw the fragment into a bucket, picked it up by the handle, and ran off to throw it into the pile of fuel elements. I 'took' a smaller dose then than all of us together may have 'taken'..."

How is it possible to make provision for that kind of event in the technical safety rules?

"That must have been terrible."

"It was, of course. But that is fear, not radiophobia. We do not suffer from that. Perhaps because we are 'restored' quite quickly. Three to five days, a week maximum, and we are back on form. In any event, we do not have fainting fits and weakness and things like that."

"How you feel is one thing, an objective medical examination is another. What do the analyses show?"

"The situation is almost comical. If you judge from the analyses of the blood of Georgiy Ibraimov (and he has walked around inside the sarcophagus and has been in the 'hottest' places probably more often than the others), he has received no more than 10 roentgens. Konstantin Checherov's dosimeter card shows zero. Our physician, doctor of biological sciences Nadezhda Alekseyevna Panchenko, says that she would be bold enough to make this diagnosis of each of us: healthy...

"If we become too frightened the scientific research in which, without exaggeration, the whole world has an interest, will come to a halt... We ourselves, and I emphasize this, deliberately take the risk, but we are able to do so. Life is dear to us."

Somehow some American colleagues were visiting the "stalkers." They had taken part in the cleanup following the Three Mile Island accident. It is known from the press that the scale and consequences of that accident bear no comparison with those at Chernobyl. The Americans told us that detailed reports on each of them were presented on coast-to-coast television in the United States as if they were heroes. But who in the Union knows about our guys working in the darkness of the sarcophagus?

And so I consider it necessary to name them. They are: Muscovites Konstantin Checherov and Georgiy Ibraimov, Igor Mikhaylov, Aleksey Nenaglyadov, Sergey Dzhilovyan, Arsen Pavliashvili from Ordzhonikidze, Sergey Koshelev from Leningrad Oblast, and Yuriy Kobzar from Kharkov.

Officials Comment at Chernobyl Situation News Conference

LD1704180791 Moscow TASS in English 1724 GMT 17 Apr 91

[by TASS correspondent Rena Kuznetsova]

[Text] Moscow April 17 TASS—Between 1986 and 1989 the Soviet government allocated 9.2 billion rubles for the clean-up after the Chernobyl Nuclear Power Plant disaster. This year it earmarked 10.3 billion rubles for the purpose, deputy chairman of the Soviet government's commission for emergencies told Soviet and foreign journalists here today.

He was speaking during a news conference at the Soviet Foreign Ministry's press centre. Gubanov noted that work is now going in all three Soviet republics which were affected by the Chernobyl blast to resettle people from areas where the radioactive contamination exceeds 40 curie per square kilometer as well as from zones where contamination measures up to 15 curie per square kilometer.

The plan for 1990 was to resettle 29,000 people, while actually 88,000 were resettled.

Responding to questions from correspondents about the present state of the Chernobyl power station, Gubanov said that "researchers keep an eye on the fourth unit and study the state of the blown-up reactor and the sarcophagus. The latest data confirm that the nuclear fuel inside the unit is in a state which rules out the beginning of an uncontrollable chain reaction. Specialists are now working to decide on the further fate of the protection structure. As regards the power station, design work is under way to shut it down completely in keeping with the decision of the Ukrainian parliament.

Gubanov recalled that last December, Chernobyl problems were discussed by the United Nations and it was decided to considerably expand international cooperation with the Soviet Union to help alleviate and overcome consequences of the accident.

Soviet Deputy Health Minister Alexander Kondrusev expressed anxiety and concern over the fact that despite prohibition people continue to return to the 30-kilometer zone, where nearly 1000 inhabitants continue to reside with no medical or other services available.

Asked about the state of the sarcophagus, First Deputy Minister of Nuclear Power Engineering and Industry Viktor Sidorenko told journalists that the task to be accomplished by researchers and specialists at present is to strengthen the protective structure. On the whole, he said, this task can be handled stage by stage in order to ensure the reliability of stability of the cover for 100 years and more.

Nuclear Specialist Says Chernobyl Health Hazards Reduced

LD1504151591 Moscow TASS in English 1257 GMT 15 Apr 91

[By TASS correspondent Veronika Romanenkova]

[Text] Moscow April 15 TASS—"Five years have passed since the Chernobyl disaster, and the danger to the health of people living near the nuclear power plant has been reduced due to appropriate and timely action," specialist from the Soviet nuclear power industry ministry Yevgeniy Ignatenko told TASS.

"Now, specialists should first and foremost deal with decontaminating districts that suffered from radiation and create conditions for people living there," Ignatenko said.

The radiation background caused by the Chernobyl disaster is currently being determined by isotopes of caesium, plutonium and strontium. The isotopes are located in a two-cm thick layer of soil and ten-cm layer of silt in water reservoirs. Plutonium causes the greatest danger, as its half-life is over 20,000 years, Ignatenko said.

Scientists suggest two ways to solve the problem: the soil can be deeply ploughed to mix harmful elements with "clean" soil or the soil surface on some 100 square kilometers can be removed and processed and the recovered plutonium buried, Ignatenko said.

Ignatenko was involved in cleaning up the aftermath of the disaster for the first two years. He believes that the situation in the region is quite normal. He said it is not worth moving people from regions hit by radiation. It is more advisable to organise quality medical control and improve living conditions.

To this end, the state register of victims of the Chernobyl disaster has been compiled. The register contains information about 539,000 people, including 192,000 participants in cleaning up the aftermath of the disaster, Ignatenko said.

Chernobyl Nuclear Power Plant 'Poses No Threat'

LD1804133891 Moscow World Service in English 0000 GMT 18 Apr 91

[Excerpts] A news conference was given in Moscow on 17 April on the situation in areas affected by the Chernobyl nuclear disaster five years after it. [passage omitted]

Here's what the chairman of the State Commission for Emergencies under the USSR Cabinet of Ministers, and the man in charge of dealing with the effects of Chernobyl, Viktor Gubanov, told newsmen.

He said 26 April marks 5 years since the disaster. Here are some updated facts and figures:

An area of 131,000 square kilometers was contaminated with the radioactive isotope caesium 137. A total of 4.8 million people suffered as a result of the disaster.

The damage done by the Chernobyl disaster is estimated at 9 billion rubles. Over the past five years, 188,000 people have been resettled away from the heavily contaminated areas; 145 people developed radiation sickness—28 of them died over the first three months after the disaster. The incidence of cardiovascular, thyroid gland, and blood diseases is on the rise in the contaminated zone.

The fourth generating unit of the Chernobyl Nuclear Plant is sealed in a huge concrete block whose walls are in some places 18 metres thick.

Speakers at the news conference assured that the stricken reactor is sealed safely and poses no threat now or in the future. It is monitored very closely. The Chernobyl Nuclear Power Plant will be gradually shut down starting from the year 1993. [passage omitted]

Scientist on Prospects for New Chernobyl Accident

LD1604183791 Moscow TASS in English 1658 GMT 16 Apr 91

[By TASS correspondent Veronika Romanenkova]

[Text] Moscow April 16 TASS—The possibility of radioactive particles escaping from under the concrete lid of the fourth unit at the Chernobyl power plant which blew up in 1986 is now very small, Aleksandr Borovoy, a specialist in nuclear power engineering, told TASS.

But the danger may increase as the structure grows older. This is why researchers and designers are now working on the project for a completely safe burial of the nuclear fuel from the Chernobyl Nuclear Power Station.

One proposal is to build a special shelter and remove the fuel there. Another option is to "win time" and use it to transform the present burial into a structure capable of safekeeping nuclear fuel and radioactive substances, he said.

Borovoy recalled that the decision to build a sarcophagus to encapsulate the fourth unit was made by the government commission in May 1986. It took six months to build the 60-meter-high structure. Its northern terrace-like wall was made of concrete and the original western wall was covered in a steel casing reinforced by buttresses 45 meters high. From the east walls and partitions were built to separate the fourth unit from the third one. The lid of the sarcophagus is made of 27 steel pipes overlaid with steel plates. There is no concrete roof beneath this structure.

According to the designers' estimates the sarcophagus was expected to last 20 to 30 years and be able to withstand earthquakes measuring six or seven degrees on the Richter scale and hurricanes. But it was impossible to guarantee that the hundreds of rooms of the former fourth unit, devastated by the explosion and subsequent fire and encapsulated in the sarcophagus would remain unchanged. It could be expected, the Soviet specialist said, that as years went by the structures would deteriorate and the nuclear fuel remaining inside (180 tonnes or 96 percent of the original amount) would be displaced. This could eventually lead to the beginning of a self-sustained chain reaction and subsequent fresh discharges of radioactivity into the interior. Should a major portion of the structure collapse, it might force radioactive dust through cracks into the environment. It would be wrong to think that these possible dangerous developments are capable of bringing about anything resembling the original blast in effect.

Borovoy also noted that a special expedition had been created to reinforce deformed or weakened structures and deactivate the interior. Its main task, however, was to identify and prevent nuclear danger. It was necessary to penetrate rooms where radiation doses measured several thousand roentgen per hour. Human beings can survive a bare few minutes under these conditions. In order to study the state of fuel remote control devices were used which were lowered into the rooms through specially drilled apertures.

These studies have shown that the sarcophagus does not pollute the air above the site and can have no effect whatsoever on Chernobyl or Kiev. The discharge of radioactivity, which was hundreds of times lower than above the operating unit, became negligible after a powerful sprinkling device was installed above the sarcophagus roof to suppress dust emission.

Commission Head Fears New Chernobyl Accident

LD2504204891 Berlin ADN in German 1940 GMT 25 Apr 91

[Text] Berlin (ADN)—The head of the parliamentary investigative commission on the consequences of Chernobyl [as received] Vladimir Yavorivskiy, fears a dust explosion in the fourth reactor block of the Chernobyl nuclear power station. For this reason the solution of the problem requires "the entire world's intellectual capacity", Yavorivskiy stated in an interview with the Berlin-based newspaper DER MORGEN (Friday edition).

Yavorivskiy stated that there are around 800 dumps in the Soviet Union—many of them unknown—in which waste, demolition tanks, machines, concrete, and nuclear fuel are "simply buried" in unsuitable ways. Even the reactor itself is located on a geological fault in the layers of the earth where the water table is very close to the surface. Now the water of the Dnepr is almost as radiocatively contaminated as the water inside the reactor, because the central government in Moscow did nothing. The head of the investigative commission expressed the fear that "either in the short or the long term the entire industrial south of the Ukraine which takes its drinking and utility water from the Dnepr will be without water supply."

Asked about people's exposure to radiation, Yavorivskiy said that in the meantime it has become a matter of the country's future, "of nothing less than the nations' genetic code." He recalled that in many places "calves are regularly being born with five legs or three eyes." In his opinion, the gruesome truth is "that the same thing awaits humans in three to four generations."

Yavorivskiy made strong accusations against the Soviet Nuclear Energy Ministry. The authority used the money collected by children and donated by pensioners and working people to pay off its own debts instead of using it in Chernobyl. This was ordered by former Prime Minister Nikolay Ryzhkov.

As a whole the contaminated area has become "the feeding crib for the central state authorities." Twenty million rubles have been spent on the zone around the reactor without a single official document. However, "nothing has arrived on the spot." For this reason the "problems of the century" can only be resolved by an independent state. [sentence as received]

(The interview was pre-released to ADN)

International Scientific Center Set Up at Chernobyl

PM1804143191 Moscow Central Television First Program Network in Russian 1200 GMT 16 Apr 91

[From the "Television News Service" newscast: Report by V. Makarenko and G. Mishcherenko, identified by caption, from Chernobyl]

[Text] [Announcer] On 27 April we will be marking the grim anniversary of the Chernobyl disaster. Many scientists believe that it equaled 300 Hiroshimas. An international scientific center has now been set up in the 30-km exclusion zone around the nuclear power station.

[Makarenko] The Chernobyl zone has now been attracting special attention from not just our scientists but also foreign ones for the past five years. This is also the main reason why an international scientific center has been set up in the zone.

The first agreements and contracts for joint work in the sphere of radioecology and agricultural radiology, which will begin as early as May of this year, were signed by representatives of the IAEA [International Atomic Energy Agency] and scientists from Japan, Switzerland, South Korea, and Finland.

What is the Soviet side expecting from this organization, and what, in your opinion, will happen in the zone as a result of its establishment?

[M.S. Babayev, deputy chief of an administration of the USSR Ministry of Atomic Power Engineering and Industry, identified by caption] We expect work to speed up and the quality of research to improve. We are hoping that international cooperation within the framework of the international center will help us to eliminate many of the consequences of the accident more promptly and more reliably. This is our hope.

[Makarenko] Could it happen that scientists will now instruct technical organizations on the extent of the elimination of the consequences and the techniques to be used?

[Babayev] Well, this would be desirable since it would ensure that funds are channeled toward specific objectives which should be attended to.

[Makarenko] The agreements signed at Zelenyy Mys, the settlement of the eliminators of the disaster, will also have a purely commercial aspect. They will make it possible to obtain from our foreign partners an additional $1 million to combat the consequences of the Chernobyl disaster.

More on Chernobyl Research Center

LD2204225791 Moscow TASS International Service in Russian 1620 GMT 22 Apr 91

[Text] Kiev, 22 April. (TASS)—UKRINFORM-TASS correspondent Aleksey Petrunya: A center for international scientific research will begin work in the very near future in the 30 km zone set up on a decision by the Soviet government around the Chernobyl Nuclear Electric Power Station. A UKRINFORM-TASS correspondent was told this by Pavel Pokutnyy, deputy general director of the Pripyat Scientific-Production Association, which employs all the workers in the zone, and in charge of foreign economic relations. He noted that Soviet and foreign specialists will be carrying out research at this center in three basic areas: in the field of deactivization (scientists of Germany, Sweden, the Republic of Korea and Japan have already reaffirmed their consent here), radioecology (the effect of radiation on flora and fauna) and radioepidemology (studying people who have suffered from radiation). The European community also plans to create in this zone its own laboratory, which will be fitted out with the latest equipment.

Pavel Pokutnyy noted that a complex of facilities for the deactivization and burial of radioactive waste is being envisaged in the 30 km zone.

A scientific center, carrying out research into radiological, biophysical and other areas, based on treaties and contracts with various scientific establishments, is already operating at the Pripyat Association. Representative conferences, attended by leading scientists from abroad, have already been held according to a program agreed with the IAEA.

Although agricultural production is not being carried out in the zone, Pavel Pokutnyy stressed, an experimental farm has been created in the former power engineers town of Pripyat where the seeds of over 100 plants are being cultivated in hothouses over an area of two hectares.

Chernobyl Power Plant Director Outlines Problems

LD2304194491 Moscow TASS in English 1439 GMT 23 Apr 91

[By UKRINFORM-TASS correspondent Aleksey Petrunya]

[Text] Kiev April 23 TASS—"Although all ways of phasing out the Chernobyl Nuclear Power Station by 1995, as was demanded by the Ukrainian parliament, have negative aspects and are costly (from one to three billion rubles), one of them must be chosen," said station General Director Mikhail Umanets.

One variant envisages building the sarcophagus-2 facility over the existing coffin structure around the ruined fourth power-generating unit and filling the vault of the ruined reactor with concrete.

A host of measures have been implemented since the accident to enhance the safety of graphite moderated light-water cooled reactors (RBMK), which operate at the Chernobyl station.

These measures included tightening operational rules and switching reactors to fuel with a higher content of uranium-235, which diminished the so-called steam coefficient of reactivity from five to six times. It is exactly this indicator that played a fatal role in the catastrophe on April 26, 1986.

Specialists also modified the design of control rods, the time of their descent was cut from 24 to 12 seconds. An emergency system that is actuated within 2.5 seconds was introduced.

However, Umanets thinks that it is still impossible to say that RBMK reactors meet all safety requirements. Specialists at the USSR State Committee for Supervising Safe Conduct of Work in Industry and Nuclear Power Engineering think that several fundamental design problem in this type of reactor cannot be resolved.

On the sarcophagus facility, Umanets said scientists believe that an uncontrolled chain reaction is impossible here. Over the last three years, specialists conducted an intensive probing of the epicentre of the accident, drilled about a hundred wells, took samples of heat-containing masses and installed control sensors. But the collapse of the ruined structures inside the sarcophagus is not ruled out.

Chernobyl Management Interviewed on Plant's Closure

LD2404035291 Moscow Central Television First Program Network in Russian 1800 GMT 23 Apr 91

[From the "Vremya" newscast]

[Text] [Announcer] The fifth anniversary of the Chernobyl disaster is in two days. A discussion on prospects for developing nuclear power engineering has been under way all this time. The design and construction of new nuclear units has been frozen in the country. As you know, the Ukrainian Supreme Soviet decided to close down the Chernobyl Nuclear Electric Power Station [AES]. Yet attitudes to this decision remain ambiguous. And what do power engineers think about the future of their station? Here is an interview prepared by our correspondent.

[Unidentified correspondent] Can one compare the degree of reliability of the Chernobyl station in 1985 and 1991?

[N.M. Sorokin, chief engineer of the Chernobyl AES; identified by screen caption] Yes, one can, both in quantity and in quality. If one takes strictly quantitative evaluations, the reliability of the Chernobyl AES, that of its reactor, has increased by two to three orders of magnitude. If one speaks about the qualitative side of the matter, this means 100 or 1,000 times. Speaking about the qualitative aspect of the changes, reactor parameters have been changed in such a way today that a repeat of the 26 April 1986 accident is impossible in principle. A new in principle quick response emergency protection has been implemented which is fully operational 2.5 seconds after it is triggered. Only the reliable operation of the station—and this is perhaps the main thing—full openness, full and the most detailed information on the state of things at the station—something we are trying to do today—can rehabilitate atomic power enginering, in my view.

[M.P. Umanets, director of the Chernobyl AES; identified by screen caption] Well, my personal wish is, while implementing measures to improve the safety level in the future, to maximize the service life of the station too. Today we can generate 15-16,000 million kilowatts year. This is five to six percent of the total generated by Ukrainian stations. So, we receive commodity output worth 350 million rubles [R]. That is, over 10 years we will receive R3.5 billion, including about 500 or 600 million in net profit.

Now let us look at the second option. Suppose we close down the station. The commission which worked, with which we exchanged views and signed the document, calculated R2.1 billion, not for completely stopping the operation but for discharging reactors and mothballing for further dismantling. But we cannot calculate these losses in this way. To date I do not know, although I am studying the issue, how the 3 million yielded by our units due to be taken out of operation by 1995 are to be made up. There is no serious program to date for making up for the shortage that will emerge. [video shows the interviews, station control room, various instruments on display]

German Experts To Measure Chernobyl Radioactivity

AU2604095791 Frankfurt/Main FRANKFURTER ALLGEMEINE in German 26 Apr 91 p 1

["hal" report: "German Experts To Measure Radioactivity in Chernobyl"]

[Text] Bonn, 25 April—On the fifth anniversary of the Chernobyl reactor accident FRG Environment Minister Toepfer (Christian Democratic Union) called in Bonn for the development of an "international security partnership." This is a priority goal of the FRG Government, he said. The constant improvement of nuclear facilities remains a permanent task. In the Soviet Union people have not come to terms with the consequences of the reactor accident by far. In May a measuring program by German experts is to start in the radioactively contaminated areas of the Soviet Union, which will brief approximately 100,000 people about their radioactive exposure. The FRG Government will subsidize the program with 7.1 million German marks.

Official on Prospects for Nuclear Power

LD2304180291 Moscow TASS in English 1112 GMT 23 Apr 91

[By TASS correspondent Vladimir Yegorov]

[Text] Moscow April 23 TASS—"Despite the crisis of confidence in nuclear power stations, the future belongs to them in ensuring the country's energy supply," said Viktor Sidorenko, USSR first deputy minister of atomic energy and industry.

He was addressing the international consultative meeting "Nuclear Energy, Trade Unions—A Look to Future" which is in its second day in Moscow. The meeting coincides with the fifth anniversary of the Chernobyl nuclear disaster. It is being attended by heads of trade unions of nuclear industry from Hungary, Poland, the USSR, France, Czechoslovakia, Sweden and Japan. Specialists in power generation were also invited.

"The accident at the Chernobyl Nuclear Power Station disrupted mutual understanding between the public and nuclear scientists and workers at plants manufacturing nuclear equipment," Sidorenko said. "Meanwhile, all Soviet nuclear stations, both operating ones and those currently under construction have effective systems for protection from radiation so that the disaster cannot be repeated.

"A paradoxican [as received] situation has formed: the public prohibited the construction of those nuclear stations that have perfected reactors suiting world standards. For instance, as regards nuclear thermal power plants in Voronezh and Nizhniy Novgorod, their project has been highly assessed by IAEA [International Atomic Energy Agency] experts."

Noting that opposition to nuclear power plants exists not only in the Soviet Union, Sidorenko said that only the open exchange of information can quiet the people's concern and fear.

He said that the journal ATOMIC ENERGY will be launched in the USSR. Its purpose is to influence the public, reversing its negative attitude to developing nuclear energy, popularise advanced experience and technological achievements and involve the broad public in the solution of ecological problems. The journal's editors wish to exchange information with colleagues abroad.

"The anti-nuclear campaign constrained the potential of Soviet nuclear power plants, which will increase by only 3-4 million kilowatts," Sidorenko said. "But we hope to overcome the psychological barrier in the minds of our compatriots and convince them that there is no alternative to nuclear energy. In any case, we continue to work on reactors of the new generation, which must constitute the basis for the country's energy system at the beginning of the 21st century".

1990 Nuclear Plant Incidents Summarized; Moscow Oblast Hotspots Mapped

91WN0321A Moscow RABOCHAYA TRIBUNA in Russian 6 Feb 91 p 2

[Article by Natalya Kozlova and Yuriy Rogozhin, including interview with N. Shteynberg, deputy chairman of the USSR State Committee for Oversight of the Nuclear Power Industry; date and place of interview not given: "The Chernobyl Syndrome"]

[Text] *According to figures of the USSR State Committee for Oversight of the Nuclear Power Industry, last year 15 nuclear power stations were in operation. Forty-five generating units employing various types of nuclear reactors were being operated at them. Reactors of the VVZR type, similar to those used abroad, have become the most common in recent years.*

Over the course of the year 139 unplanned stoppages of reactors occurred at the nuclear power stations.

The statistics can be followed from the table:

Nuclear Power Stations	Number of Generating Units	Stoppages
VVZR-Type Reactors		
Balakovskiy	3	14
Zaporozhye	5	30
Kalinin	2	6
Kola	4	5
Novovoronezhskiy	3	12
Rovno	3	17
Khmelnitskiy	1	5
Southern Ukraine	3	21

Nuclear Power Stations	Number of Generating Units	Stoppages
RBMK-Type Reactors		
Ignalina	2	5
Kursk	4	5
Leningrad	4	1
Smolensk	3	8
Chernobyl	3	5
Other Types of Reactors		
Beloyarsk	1	2
Bilibino	4	3

The causes of unplanned stoppages were broken down by percentages as follows:

unsatisfactory quality of manufacturing—24.5 percent

design flaws—17 percent;

mistakes by personnel—31.5 percent;

other causes and unexplained causes—23 percent.

N. Shteynberg, deputy chairman of the USSR State Committee for Oversight of the Nuclear Power Industry, answered the editors' questions.

[Kozlova and Rogozhin] How did the quality of the operation of nuclear power stations change in 1990 compared to the previous year?

[Shteynberg] Unfortunately, the number of unplanned stoppages increased by 17 percent. Another index—the average frequency of stoppages per generating unit also got worse (it was 3 in 1990, as opposed to 2.6 in 1989).

[Kozlova and Rogozhin] To what is that attributable?

[Shteynberg] Nuclear power engineering cannot be separated from everything that is happening in our society: discipline is declining, and the quality of the equipment and spare parts delivered to nuclear power plants is deteriorating. Constant changes in the economic management system are not having the best effect, either. Moreover, nuclear power engineering has its own specific problems. I have in mind the antinuclear movement, which last year for some reason started taking actions against the personnel of some nuclear power stations. Thus, in July a blockade of the Khmelnitskiy Nuclear Power Station was organized. Demonstrations demanding that stations be closed have been held at the Balakovskiy and South Ukraine Nuclear Power Stations. The situation at the Ignalina Nuclear Power Station has become aggravated.

People should understand that whipping up an intolerant atmosphere around nuclear power plants has a very bad effect on personnel, and that means it affects operating safety.

[Kozlova and Rogozhin] Tell about the most serious incidents at nuclear power plants last year.

[Shteynberg] Before answering that question, I would like to remind you that the serious of incidents at nuclear power plants is measured on a seven-point international scale.

Since the adoption of this scale of measurement, of the 82 incidents occurring at nuclear power plants from 1 September through 31 December, the majority (56) were rated zero, as not affecting the power plants' safety, 24 were rated as insignificant (first-level), and only two were classified as incidents of moderate gravity (second-level). Those are the ones I will tell you about.

On 8 September at the first generating unit of the Ignalina Nuclear Power Station, the safety valves on the reactor's first loop were opened because of personnel error. The steam released from the valves was absorbed by the confinement system, and therefore there was no discharge into the environment or exposure of personnel radiation. The serious of the incident lies it its potential danger.

On 9 October nuclear fuel was being loaded at the first unit of the Zaporozhye Nuclear Power Station. Because of a defect in the loading mechanism, the cassette containing fresh fuel was damaged. Although in this case there was no danger of radioactive contamination, the very fact of a defect in the loading mechanism was justifiably assessed as a fairly serious incident.

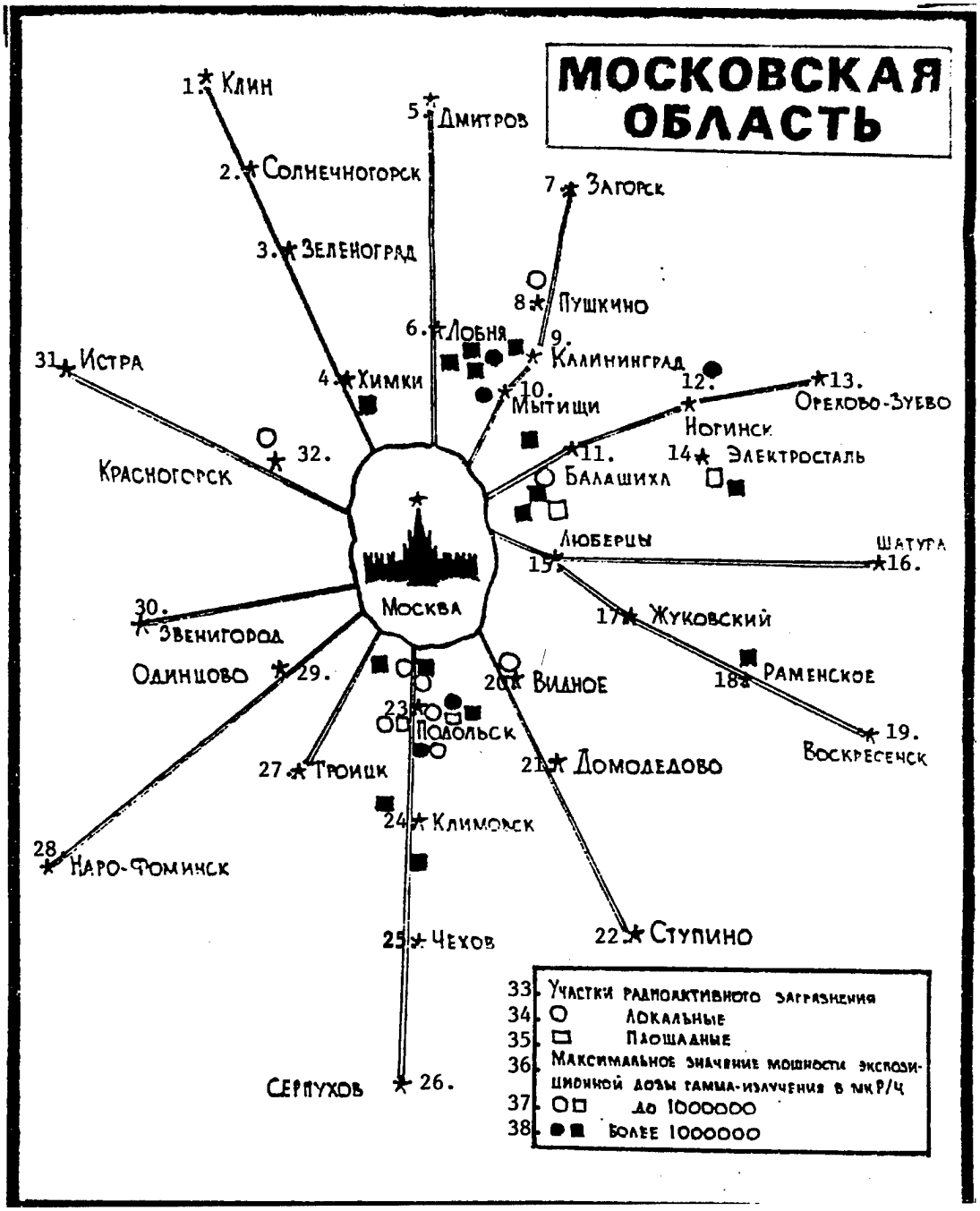
[Kozlova and Rogozhin] Allow us now to ask you a question that seemingly goes beyond the framework of our discussion. What is the safety situation on ships in the nuclear fleet?

[Shteynberg] Last year there were 11 shipboard nuclear generating units on six icebreakers and one lighter-aboard ship. On the whole this equipment performed fairly dependably and created no serious problems for fulfillment of the navigation plan. But isolated incidents did occur, and we need to talk about them.

On the Sibir nuclear icebreaker there were seven cases in which the seals on stem generators were broken. A commission of the USSR State Committee for Oversight of the Nuclear Power Industry banned operation of that icebreaker's power units until the defective steam generator had been replaced. We also banned operation of the nuclear reactor on the starboard side of the Artika until the active zone of the starboard reactor is replaced.

There were not any other cases in the nuclear fleet that were important from a safety standpoint.

We continue our publication of maps of radioactive contamination of the union-republic capitals and the country's industrial centers. Today we have obtained a map showing the location of dangerous points in Moscow Oblast.



Moscow Oblast

Key: 1) Klin, 2) Solnechnogorsk, 3) Zelenograd, 4) Khimki, 5) Dmitrov, 6) Lobnya, 7) Zagorsk, 8) Pushkino, 9) Kaliningrad, 10) Mytishchi, 11) Balashikha, 12) Noginsk, 13) Orekhovo-Zuyevo, 14) Elektrostal, 15) Lyubertsy, 16) Shatura, 17) Zhukovskiy, 18) Ramenskoye, 19) Voskresensk, 20) Vidnoye, 21) Domodedovo, 22) Stupino, 23) Podolsk, 24) Klimovsk, 25) Chekhov, 26) Serpukhov, 27)Troitsk, 28)Naro-Fominsk, 29) Odintsovo, 30)Zvenigorod, 31) Istra, 32) Krasnogorsk, 33) Sectors of radioactive contamination, 34) Localized 35) Dispersed, 36) Maximum exposure dosage of gamma radiation, in [illegible] roentgens/hour, 37) up to 1 million 38) more than 1 million

Leningrad AES' Chernobyl-Type Reactor Overhauled

PM1704125191 Moscow Central Television First Program Network in Russian 0900 GMT 15 Apr 91

[From the "Television News Service" newscast: Report by S. Chekalin, identified by caption]

[Text] [Announcer] Soon it will be the fifth anniversary of the Chernobyl disaster, and the specter of Chernobyl is still haunting the country. The fear of the nuclear bogey remains in people's hearts, and this is quite understandable. Another aftereffect is people's special attitude toward the nuclear power industry.

According to the USSR Ministry of Atomic Power Engineering and Industry, the planning and construction of 60 nuclear power stations with a total capacity of 160 million kilowatts has now been discontinued. Nonetheless, the country's scientists and designers claim that they have learned their lesson from Chernobyl. A great deal has been done of late to ensure the safer operation of nuclear power stations.

[Chekalin] What you see are the buildings of the Leningrad Nuclear Electric Power Station [AES], which is located on the shores of the Gulf of Finland. We have filmed all its four one-gigawatt power units from the air. The capital overhaul of the first power unit's reactor which has just been completed can be described as an event of special importance. Some 15 years ago it initiated the series of the selfsame RBMK-1000 nuclear reactors which are now being referred to as the Chernobyl reactors. The overhaul carried out on this "first-ling" reactor is unprecedented in world practice. All technological lines have been replaced. This is comparable to a heart transplant. New monitoring and accident-prevention systems have been installed. Essentially, an updated reactor has been created which meets all the stipulations of the IAEA [International Atomic Energy Agency]. Tests of the new equipment are currently under way. The reactor's new life exceeds 10 years. The rebirth of this reactor will make it possible to embark on the renewal of the nuclear hearts of all the power units of the Leningrad, Chernobyl, Kursk, and other nuclear power stations of this series in the near future.

Rumors of Gatchina Reactor Explosion Denied

PM1004090091 Moscow IZVESTIYA in Russian 8 Apr 91 Union Edition p 6

[A. Pokrovskiy report: "What 'Blew Up' in Gatchina?"]

[Text] Telephone calls began to come in to our Leningrad correspondent's office: "Is it true that a nuclear reactor has blown up at the Institute of Nuclear Physics?"

In order to verify this information, our correspondent S. Krayukhin called V. Nazarenko, deputy director of the institute. Vladimir Andreyevich reassured us: There was no explosion at the reactor, and accordingly no danger to the inhabitants of Gatchina and the adjacent regions. A "small piece" of metal fell off in the reactor, and is now being removed. There has been no nuclear leak, and there is no cause to fear unforeseen consequences.

Our commentary: This reassuring explanation from an official could have ended the matter. But... I am not about to enter into an argument with experts about the danger or otherwise of a "small piece" of metal falling off from somewhere or other. I will only report what I know: During reloading of the nuclear fuel, radioactive contamination of the reactor itself took place. What happened—an equipment malfunction or negligence?—remains to be made clear. But for the moment, I repeat: There have indeed been no radioactive discharges, according to our information. Nor, fortunately, were any of the personnel exposed to excessive radiation. The research reactor has been shut down...

Construction Halted on Fourth Block of Kalinin Nuclear Plant

LD2004102891 Moscow All-Union Radio Mayak Network in Russian 0700 GMT 20 Apr 91

[Text] A session of the Tver Oblast Soviet of Peoples Deputies has made a decision to halt the construction of the fourth block of Kalinin Nuclear Electric Power Station [AES] while continuing construction of the third block for now.

Arguments about the construction of the AES have been going on for several years. Opponents of the project assert that the site of the AES was selected very badly, in a water-shed region. The main argument of the supporters of the construction is the catastrophic shortage of power resources.

However, a state ecological impact assessment commission study will have the last word. It is just beginning its work and will cost no less than 900,000 rubles.

Plans for Semipalatinsk Nuclear Test Site

91US0446A Moscow IZVESTIYA in Russian 13 Apr 91 Union Edition p 3

[Interview with Yevgeniy Chaykovskiy, mayor of Kurchatov, by IZVESTIYA special correspondent A. Illesh: "'Chain Reaction' at the Nuclear Test Facility—When Conversion Problems are Aggravated by the Military Itself"; place and date not given; first three paragraphs are IZVESTIYA introduction]

[Text] Kurchatov-Moscow—It was a strange morning. Our vehicle sped into Semipalatinsk from out of nowhere along an ideal, straight highway just like an airport runway. The flat surrounding steppe was powdered with snow. Ahead one could already make out the smoke of the oblast center, and behind—the City of Kurchatov, just yesterday a secret city that did not even exist on the maps. Also known as Semipalatinsk-21. Also

known as the end-of-the-line railroad station with the symbolic name "End of the Road"...

So extremely strange—the matching proximity of super secret, underground, entirely unique reactors, which today often stand idle but are capable when loaded not only of resolving complicated nuclear energy problems, but of bringing in currency as well (foreign-requisitioned research may be conducted here), and flocks of sheep and herds of horses grazing not far from the barbed wire—something out of the cattle-breeding past of the local steppe... Rusted rails thrust deep into tunnel shafts where explosions recently rang out, and a dispirited queue waiting for ordinary pastry... The test facility. A world turned inside out, in which the same conditions are not set up for the specialists from nuclear "factories" creating weapons of the 21st century and the indigenous population, suddenly discovering that these very weapons were tested not just on their land, but at the expense of their well-being as well...

We discuss the fate of the city, and the problems of the test facility and the highly qualified specialists living there, with Kurchatov Mayor Yevgeniy Chaykovskiy.

[Illesh] First of all—how do you manage to be working there, an engineer, a civilian, in a zone which is under the complete influence of the military?

[Chaykovskiy] Indeed, it used to be that the ispolkom [executive committee] here, in a zone closed to outsiders, had neither power nor authority. There was a party gorkom [city committee]. As for the soviets, they were like a "subsection" of the gorkom. Today we have two mutually exclusive authorities, soviet power and military power. One is a command authority, the other a democratic one. The relations we have developed with the military are complex. There is a mass of problems... I am convinced that at all levels we must pose the question of sovietization of the test facility, or else the city, its offspring, will simply perish. And it will not perish all that quietly: the tragedies faced by people here may resound in an unforeseen echo.

[Illesh] Living for decades in a state of well-being behind the barbed wire, under the wing of the all-powerful USSR Ministry of Medium Machine Building, how have you now come to find yourself on the edge of bankruptcy, in the circle of social, and even ethnic problems? Isn't your "master" still rich and all-powerful?

[Chaykovskiy] It is not quite that way. In order to understand the situation today, we must take an excursion into history. First of all, the development of nuclear weapons and nuclear weapons testing, I am convinced, is the privilege of a state with a highly organized and stable economic and political structure. Presently we have neither. With a more than sufficient arsenal for containment at our disposal, we cannot permit ourselves to be drawn into an interminable, exhaustive race around the circle of nuclear rearmament.

Reorientation of the nuclear industry is a tremendous problem. This is the destiny of several hundred thousand people. Distorted development of the economy and defense branches of industry have brought the situation to an impasse. The bomb has been developed and perfected, the nature of testing has changed, the population has increased in areas adjacent to the test facility... Everything has changed! The only thing which hasn't changed is the narrow departmental approaches to relations with the surrounding world.

[Illesh] For 22 years, from 1949 through 1962, there were air and ground nuclear bursts. The damage inflicted to people's health and to the ecology of the region has been vast, as I understand it. What is the situation today?

[Chaykovskiy] Indeed, the region was always considered a zone of economic risk. Development of industry, of the villages, was restrained... But life goes on. The population grew. Grew and became poor. There was no compensation for people's health, weakened under the influence of the effects of nuclear on-site testing, no balanced or specially developed nutrition regimen. To this day no special treatment facility has been built—not in Semipalatinsk, nor Pavlodar, nor Karaganda. One unhealthy generation has given birth to another. And that, to a third. It's like a snowball! There exists today an entire people requiring special charitable attention. A people that became hostage to the nuclear parity which terminated in a "victorious conclusion."

[Illesh] As a result, the facility, as a site of nuclear testing, will not be accepted either by the republic or the local population. What is the position of the soviets?

[Chaykovskiy] The new soviet of people's deputies formed in January of last year is compelled to seek another future for the test facility—after all, it has long ceased to be a simple "field" where holes are bored for weapons testing. Over 40 years of existence it has grown into a developed scientific research complex, including a facility of the Ministry of Atomic Energy and Industry, with well equipped laboratories, highly qualified scientific and production personnel, and the original functioning reactors...

And now the ispolkom and prominent specialists have charted the main avenues for accomplishing conversion of these enterprises. We have proposed a reorientation of the facility's activity—to convert it to a science and technology center for research in the sphere of atomic energy, basic and applied nuclear physics, and the utilization of nuclear technology in the peace-oriented sectors of the economy. Based on the test facility's research laboratories, a university would be established with orientation on physics and power engineering. We have proposed the development of a substantiation for building a nuclear power station here (an idea which has found support, I would add—60 percent of those polled in a population survey advocated construction of a nuclear power facility)... We would begin the extraction and processing of coal, deposits which are located on the

territory of the test facility, and would exploit the production of crushed granite...form a modern agricultural firm...

[Illesh] An agricultural firm?! Aren't you forgetting about the specific terrain we have here, and an ecology which has suffered great damage from explosions?

[Chaykovskiy] No. This too has been taken into account. Furthermore, we intend to study the possibility of using the holes and tunnel shafts bored by the military as burial sites for radioactive waste. And the main thing is to build a center based on the Semipalatinsk medical institute, the test facility's radiological laboratories, and the health clinic here, for studying the effects of nuclear testing and developing a methodology for treatment. I talked over all the aspects of such a center with Nobel Prize laureate Bernard Laun (who ardently supported it!). We met with him recently at a United Nations conference, and the scientist confirmed his participation in financing such a center and providing instrumentation and equipment.

[Illesh] What is the final concept for transformation of the test facility?

[Chaykovskiy] To put it briefly—to humanize the facility, build a scientific and cultural center here. And it would be a contemporary, civilized center which in the final analysis would work for the benefit of peoples in the region.

[Illesh] Where's the snag? You are continually saying "We would like," "We intend"...

[Chaykovskiy] From the very outset, the military command structure of the test facility and its leadership in the USSR Ministry of Defense expressed firm opposition to our ideas. Using the adverse psychological and economic situation at Semipalatinsk-21 to its advantage—a city of test personnel whose families' well- being depends on the conduct of the tests themselves—test facility command personnel are encouraging people to oppose any new ideas. The generals state that conversion of the facility will bring unemployment to the military and civilian specialists. But they hide the fact that the proposed peace-oriented production and implementation of parallel defense programs (without nuclear weapons explosions) will not just entail reductions, but will require an additional contingent of specialists as well. A serious and competent conversion will enable Kurchatov itself to be extricated from its status as a "temporary military settlement," with its weakly developed social and community services, inadequate schools and child care facilities, primitive medical care, and wretched housing—and to be transformed into a full-fledged city.

[Illesh] Tell us briefly what Semipalatinsk-21 is today.

[Chaykovskiy] It is a city ruled by a military command leadership. Basic support—trade, the state portion of the services sphere, construction—are relegated to the military. However, let me repeat that two-thirds of the population are civilians, and they come to the ispolkom for solutions to their worldly problems. The times of no shortages, times of all-powerful departments of the defense establishment—are gone and will not return. We have introduced coupons for 16 varieties of food products. Commercial goods have long since switched over to coupons. Stocks are such that to buy a pair of ladies boots, a city resident must wait nine years; to get a sewing machine—a hundred or so (!)... Using the discontent of city residents to their advantage, the military can easily transfer responsibility for their own insolvency to the ispolkom. Here we see all assets used. Consider this—of 45 deputies in the soviet, 26 are military. Therefore you can even "change" chairmen every session...

[Illesh] Perhaps the military has its own ideas for the future which would enable the city and professionals living there to be saved?

[Chaykovskiy] Alas, the military command does not have a program of its own. That is, of course, if you disregard the calls for a return to "the good old days." Those in charge of the test facility and their leadership are proposing unpopular—to put it mildly—measures: to continue testing until 1993. Moreover, they are demanding that this decision be taken by the president of the country, thereby (consciously or not) driving a wedge between the center and the republic...

[Illesh] All the same, the main question again is—how long will the test facility remain inactive?

[Chaykovskiy] An extremely sore subject. The Kazakh SSR [Soviet Socialist Republic] Supreme Soviet adopted a resolution on banning nuclear weapons testing. And I believe the test facility has gone silent for good. But there is another aspect. Cessation of the testing and development of new generation nuclear weapons is the final goal. But there are two ways of resolving this: the "classical" way, using state diplomacy; and the people's diplomacy, a categorical one—stop the testing today! Classical diplomacy has its own laws, the system of inter-state negotiations. And the chief factor in negotiations for a general and total ban on nuclear weapons is the presence of reliable national means of monitoring tests that are conducted. The development of such means has been underway for some time. Specialists from the United States arrived two years ago for the first time at the Semipalatinsk facility with this aim. We did the same thing in Nevada. To complete this extremely important work, two additional nuclear experiments must be conducted here at the testing facility. These experiments are not tests. Tests presuppose a check of either new systems, or old systems taken out of storage. Here we are talking about something different. And these two experiments will involve the use of devices manufactured using well-established technologies and rigidly defined yields—20 kilotons.

[Illesh] A paradox develops—two new explosions are necessary to see to it that there are absolutely no more explosions on this earth?

[Chaykovskiy] Right. These experiments will be conducted under international control (if they are conducted at all) and in the presence of observers from the community. These efforts do not involve any technical or medical problems. But there is a sociopolitical problem—in developing nuclear weapons, the republic fulfilled its duty to the country at the price of tremendous damage and deprivation. Today people are justly posing the question of compensation payments for the purpose of organizing a normal life...

[Illesh] What do you specifically have in mind when you speak of compensation?

[Chaykovskiy] The test facility is situated in the territory of three oblasts—Pavlodar, Karaganda, and Semipalatinsk. All three are demanding compensation. Karaganda miners are talking about this as well. We have in mind the payment of 1,500 rubles [R] to every person in the territory of the three oblasts born prior to the last explosion. All told this amounts to R3 billion. It has been suggested that these payments be made over the course of three years. And the eternal question—where will we get the money? But this question never arises when funds must be found for conducting test explosions! And so this is the first, one-time, form of compensation intended for residents of the three oblasts.

Compensation to the residents of rayons immediately adjacent to the test facility should be in the form of continuous monthly payments to each worker and retired individual (not exceeding R300). In addition to monetary payments, the program envisages accelerated development of rayons surrounding the test facility. No one has put money into these rayons, including the Ministry of Defense. But people are born there, live there—all under inhumane conditions! We must begin to implement these measures without delay. In short, the problems of the test facility are emergency problems. And therefore I am convinced they must be reflected in the emergency budget. If the state does not voluntarily move toward compromise, it may witness an explosion—and this time it will be one of people.

[Illesh] How does the military relate to these plans?

[Chaykovskiy] They see them negatively. The military-industrial complex leadership believes that payments should be made only for the explosions themselves—if there was an explosion today, all right, we pay you... And then we wait until the next one... Fifteen, twenty years ago, such a practice might have been possible. But not today. Certainly there is also an understanding in the military—especially among those not burdened with large gold stars on their epaulets, that the situation is complicated and that now we need new approaches in resolving chronic problems.

The aim of the final explosions is a noble one. It is the path toward achieving a general ban on nuclear testing. Twenty-kiloton bursts will not add any additional harm to the tremendous damage which has already been inflicted. But I say again—it will only be possible to convince people of the need to endure the final nuclear experiments if compensation is awarded (guaranteed!) for damages received over 40 years of testing—to these people and this land.

Program of Kazakh Anti-Nuclear Movement

LD1804161791 Moscow TASS in English 1358 GMT 18 Apr 91

[By TASS correspondent Almat Temirbekov]

[Text] Alma-Ata April 18 TASS—Activists from the Nevada-Semipalatinsk Anti-Nuclear Movement embarked on the implementation of a large-scale programme renaissance. It is aimed at the restoration of the environment, socioeconomic and moral life of the Kazakh people who suffered the consequences of nuclear tests at the Semipalatinsk range over many years.

Scientists from the Leningrad State University of Technology and specialists of the Kazakh Design Institute for the Enrichment of Nonferrous Metallic Ore began work to create and install equipment to obtain pure drinking water in the Kzyl-Orda district and Semipalatinsk, Pavlodar and Karaganda regions where fresh water is scarce.

"No one public movement can cope with financing such programmes. So we turned for assistance to the large enterprises operating in Kazakhstan," Galina Kuzembayeva, executive secretary of the central office of Nevada-Semipalatinsk movement, told TASS.

Large industrial associations in the republic sponsored the renaissance foundation.

The movement's activists continue to expand international ties. Physicians from Australia and a number of other countries were invited to work in medical centres. Kazakh specialists visit foreign countries to gain experience. A prominent physician from South Korea, Yong Lim, contributed two million dollars to build a children's hematological centre in the suburbs of the Kazakh capital.

The renaissance programme includes "save a child" humanitarian action. More than 200 children with severe forms of leukemia need urgent treatment. Therefore, the Nevada-Semipalatinsk movement urges scientists, medics and the general public to participate in the action to help save the children.

Official Panel Cited on Northern Nuclear Test Site, Future Tests

PM1804122791 Moscow KRASNAYA ZVEZDA in Russian 15 Apr 91 First Edition p 1

[Unattributed report under "Our Digest" rubric: "What Is Being Said, What Is Being Written..."]

[Text] The following is an extract from information given to USSR Supreme Soviet Chairman A. Lukyanov by the State Military-Industrial Commission:

"...In light of the safety measures being taken the holding of underground nuclear tests at the northern test site is not affecting the radiation situation in the territory of the test site or, moreover, in the areas adjacent to it. This is confirmed by the results of systematic observations in this region by the USSR State Committee for Hydrometeorology. Even in the period of atmospheric nuclear tests carried out in 1955-1962 the content of radioactive substances in the air, ground, and water in the regions of the Far North did not exceed the permitted norms. By now the concentration of these substances has decreased and is tending to decrease further. Measurements of the test site's radiation status carried out with the participation of people's deputies from the Komi Autonomous Soviet Socialist Republic and Arkhangelsk Oblast Soviet following the 24 October 1990 underground nuclear explosion did not establish a change in the natural environment.

"...The USSR Government draft resolution 'On Measures Associated With Holding Underground Nuclear Tests' provides for the allocation to the USSR Ministry of Defense in 1991-1992 of appropriate quotas of state centralized capital investments for the preparation and holding of nuclear tests, the construction of housing and social amenities, and other essential work at the northern test site."

(This information was circulated at the USSR Supreme Soviet.)

Theories About May 1990 White Sea Contamination Examined

91WN0325A Moscow TEKHNIKA - MOLODEZHI in Russian No 12, Dec 90 pp 2-5

[Article by TEKHNIKA - MOLODEZHI special correspondent Larisa Mironova: "There Are No Guilty Parties, so the Matter Is Ended?"]

[Text] **The behavior of animal life in Dvinskaya Guba [Dvina Bay] leads one to think about mercury madness!**

Black waters of the White Sea!

The magnitude of the ecological tragedy in Dvinskaya Guba is enormous!

Did the military drop mustard-gas containers into the sea?

There is an ecological battle in the White Sea!

Such headlines appeared in the press after the massive deaths of starfish in the White Sea in May of this year. For several days local residents were afraid to eat fish and spoke about infected water not only in Dvinskiy Zaliv [Dvina Bay] but also in the Northern Dvina.

According to certain publications the number of dead starfish was several billion! (Let us note that this amount could form a 15- to 20- centimeter layer over a 30-kilometer strip of the shore.) Moreover, reports have appeared that, in addition to them, fish, birds, and mammals were dying....Simultaneously, the collection of stories about the causes of the ecological catastrophe is growing. The stories have given birth to rumors, and the rumors have become stories. Thus, at the end of July the newspaper PRAVDA SEVERA, in response to the previous reports about ecological damage, published a letter by I. Ladkin in which he said that he saw a secret map of one of Severodvinsk's fire departments. The sinister trefoil "Careful: Radiation!" was stamped on the water area of the White Sea. It was at the location of the Kandalakshskaya depression (not far from the Solovetskiy Archipelago). In the author's opinion this is a burial place for radioactive waste.

Early in August I went to visit a remote coastal hamlet. I asked the local women: Had they heard about dead starfish? Of course they had heard. What did they die of? Who knows....Perhaps from the fresh water, perhaps from chemicals. What chemicals? From the island where oilfield workers are drilling....But the fresh water? It happens in springtime, when the rivers are high and they dilute the seawater. The starfish dislike this very much. And so they die.

At Arkhangelsk I talked with Valentina Volykhina, a member of the oblast's Committee for Environmental Protection. But this body's staff worker, who logically should have the information at her disposal about who is guilty for the starfish deaths, told me no more than the hamlet's residents.

"If only we knew what to look for! Everything in the world has been looked into already! We will take any story into consideration. But at present there is nothing...."

Let us return, however, to the cases. On 10 May large amounts of dead invertebrates were washed up by the surf on a section of the Summer Shore (as they call the southern coast of Dvinskaya Guba): starfish, crabs, and mussels. One of the first inspections of it was made 18 May in the area between the Solza and Syuzma Rivers, and two types of starfish were noted: red asterias (99 percent) and bloody starfish (one percent). The total number was about 4 million. Dead crabs also were found in the garlands of seaweed washed up.

Storms which occurred late in May and at the start of June threw up on the shore two more lots of dead animal life: about 2 million starfish and 10,000 each of crabs and mussels. Thus, fewer than 6 million dead specimens were found on 65 miles of shoreline.

Back on 12 May a special commission had been created under the chairman of the oblast's Environmental Protection Committee, Vasiliy Sysoyev. It was unable to determine the causes of the occurrences—the committee had not only no special resources of any kind but not

even elementary supplies and technical equipment. There were only some 10 workers prepared to rush into the area of a disaster. Therefore, they did the only thing possible—they sent collected samples out for analyses. (These were studied at Murmansk and Arkhangelsk.)

Only a month has passed since the interagency government commission of the Russian Federation began its work. A. Vlasov, the retired chairman of the republic's interagency government commission, signed the decision to create it. Why so late? The fact is that the Committee for Protection of the Environment is not empowered to establish a sufficiently representative commission. And without it, in turn, you will not attract the necessary experts to the NII's [scientific-research institutes'] work. At first the committee had to get to the heart of the matter with its own personnel, to report to higher authority, and to wait for an answer....

Upon starting work, the commission sent the newly acquired specimens to various institutes throughout the whole country. Zoologists, physiologists, geneticists, virusologists, microbiologists, epidemiologists, veterinarians, toxicologists and oceanologists set to work....An analysis of more than 10 stories started. What provoked such an abundance? Was it the striving of various institutions and enterprises to express their own point of view, in order to help to establish a cause for what had happened, or a desire to deflect suspicion from themselves? Who was prepared to guarantee that his enterprise does not cause open or concealed damage to the environment? Particular individuals also made their own small contribution to the number of stories. How is one to get to the heart of the matter, which of them actually saw something, and who falsified in order to glorify themselves....

According to the data of the staff workers of two biological stations located on the White Sea coast, no symptoms of any kind of further mass deaths of animal life were observed after 8 June, and even the isolated washing up of dead starfish had ceased. And at the end of June staff workers of the Leningrad Zoological Institute reported that the seabed that is adjacent to the Summer Shore had already been inhabited by young starfish at an average density of 50 specimens per square kilometer (usually there are up to 100 or more). That means that a new generation had appeared, or the killing affected primarily grown specimens.

We had just begun to feel relieved with regard to the starfish when suddenly dead seals were observed on the Mudyug shore. Immediately thereafter 10 dead white whales (large sea mammals of the dolphin family, up to six meters long and weighing up to 1.5 tons) appeared on the shoreline. And although the deaths of these and other creatures is observed every year, the instances here with unexplained causes were put into the piggy bank of the starfish drama (not without the help of journalists).

When the interagency commission undertook a scrupulous examination of the stories, only six proved to be worthy of attention: 1. The springtime freshening of the water in Dvinskiy Zaliv. 2. The influence of industrial effluents from enterprises in coastal cities. 3. Increased radiation. 4. The effect of rocket-fuel components dumped during emergency situations. 5. Pollution by military war gases (OV's), particularly mustard gas and other highly toxic compounds. 6. Possible discharges of toxic substances of some kind from foreign ships.

Story 1. In May a storm wave can deposit many starfish at the mouth of the Northern Dvina, where they die. Then the river flow can carry them away, back to the sea, and the surf throws them up on the Summer Shore. Such a thing happens here, but the number of starfish that get into this predicament usually has not exceeded a few thousand.

As for the spring freshening of Dvinskaya Guba because of high water, according to Sevgidromet data, the water's surface salinity in the region of the Unskiy beacon (the closest point of observations to the site of the death of the animal life) had not been critical. In April it held at the 20-27 percent level, in May at the 18-25 percent level. Only in isolated places of the water area adjacent to Krasnaya Gora and the villages of Nenoksa and Severodvinsk was it noted at 10.7 percent, 10.9-12.3 percent, and 5.8-10.7 percent, respectively. In the sea portions of the Summer Shore, the salinity did not fall below 13 percent, the threshold for their survival.

The commission came to the conclusion that a natural process was not responsible for the death of the starfish.

Story 2. We note, before analyzing it—the White Sea's property of stable stratification. There is almost no mixing of the heavy, cold waters of the Barents Sea, with their high salinity, with the fresher waters of the White Sea proper.

Fresh water, polluted by effluents of industrial enterprises of Arkhangelsk and Severodvinsk, falls into Dvinskiy Zaliv. Already bottom sections with increased contents of phosphorus, sulfur, iron, and manganese—elements that reflect manmade pollution—have been isolated. The bacteriocidal properties of the sea water in these regions have been destroyed—in the soil, microflora not characteristic of it is flourishing.

In April 1990 unpurified water leaked into the Kudma River after an accident at the purification plant of one of Severodvinsk's enterprises. Were they not the cause of the starfish's death? No, it turned out—an analysis of the active silt on the path of the effluents did not record substantial toxic effects.

Meanwhile, the Azov NII for Fisheries reported the presence of polychloridephenyl (a byproduct in making pulp) in all the samples sent to it, in concentrations that did not present a danger for starfish life. True, dioxin—a very toxic substance that breaks down slowly and is capable of causing the large-scale prolonged death of animal life—can be synthesized in that environment. However, the tragedy in May testifies to the short-term

effects of toxins. The conclusion: the probability that the polychloridephenyl or dioxin killed the starfish is small.

According to the testimony of the Arkhangelsk Oblast Veterinary Laboratory, the samples also contained heavy metals and petroleum products, but again within the PDK—the maximum permissible concentration. (All-powerful agencies, in introducing one PDK or another, do not notify nature. Nature does not figure out that since yesterday such an amount of pollution is not harmful.)

Story 3. Here the commission coped with the matter rapidly. Data of the Arctic Fisheries Institute indicated that in all sections where starfish died the radioactive background did not exceed the norm (four-eleven microroentgens/hour).

Story 4. On 7 December 1989, about 100 kilometers northwest of Severodvinsk, a submarine, with the authorization of higher command, accidentally spilled one of the rocket-fuel components. It was hypothesized that organic nitrous compounds could have fallen into the sea along with nitric acid. But analyses of water samples and of marine soil conducted by the Zoological Institute of the AN SSSR [USSR Academy of Sciences], and also by the State Institute for Applied Chemistry, did not establish the presence of these substances. And other rocket-fuel components were not observed.

True, the cases of the accidental dropping of two rockets into the White Sea water areas in April and June 1990 add to this story. One of the military units was testing flying equipment which, as they say in such instances, did not reach the prescribed points. The first rocket went to a depth of 215 meters with 166 kilograms of T-6 fuel, the second to a depth of 12 meters with 437 kilograms of fuel remaining. According to the assurances of the military unit's deputy commander, V.V. Kupriyanov, T-6 is a highly refined kerosene with antiwear and antioxidant (ionol) additives. The head of the laboratory of the Leningrad Institute for the National Economy, B.M. Laskin, confirmed that the additives are nontoxic.

Another unit suspected of poisoning the sea with petroleum products responded to an inquiry with the reply that it had not discharged into the sea in the first half of the year any petroleum products, rocket fuel components, or other chemical substances.

Does not the simplicity of developing the story astonish one? One asks oneself the question—is there a guilty party? And of course the natural answer is recorded—there is not! And not a word about the commission's analysis of all the necessary documents of military units? And indeed, with our degree of secrecy, it is completely possible to give out black or white calmly, as one desires, and then simply to "liquidate" the compromising papers. Such things occur—and not just in "secret" offices....But the commission "closed" this story.

Story 5. At first the Arkhangelsk Fishing Combine workers panicked: animal life had been poisoned by military OV's! It happened that right at the time of the death of the starfish, the fishing combine was conducting a civil defense exercise. It was decided that, for training purposes, it would inquire into the mustard-gas content of the fish and starfish caught at the Summer Shore. To the astonishment of those being trained, almost all of them gave a positive reaction to sulfur- containing mustard gas. Without any kind of additional checking, story No 5 "went on a spree" in the pages of the press.

In about a month, at the request of the fishing combine, professional analyses for mustard gas were made for four types of fish (smelt, herring, cod and flounder), starfish, mussels and laminaria which were collected at the Summer Shore from 23 May through 8 June. In eight of 15 specimens of the fish, in three out of four starfish specimens, and in the only specimens of laminaria and mussels, a reaction to mustard gas was confirmed. However, during a repeat analysis of such creatures which were caught on 28 June in the areas of the May deaths, and also in freshwater fish, no traces of mustard gas were observed! Where did it disappear to, if it actually was mustard gas? Was it dissolved? But of course it is still more interesting to know—where did it come from? A check of those suspected—military units again, of course—produced nothing suspicious.

Story 6. Six foreign transports called at the port of Arkhangelsk in May 1990. To suspect them of anything afterwards is improper.

The matter with our shipping line stands like this. Information about haulages are kept only for one calendar year. And that is why the commission has not received papers that confirm the absence of haulages (including even those for burial) throughout the White Sea of chemical, toxic or other dangerous substances in earlier periods.

The interagency commission, although it included representatives of the highest levels, did not get to "push" for further study....

In conversations with river-fleet staff workers I learned that our steamship lines retain documentation actually over the course of a year, but then they should not destroy it but should turn it over to the archives for another three years. If the papers contain especially important information, for example about dangerous or high-value haulages, the storage period is extended. This means that somewhere documents are lying on some shelves, still unclaimed by the commissions.

Now, then, we must talk about the results that have been summed up.

According to preliminary estimates, there are about 4 billion individual asterias rubens in the White Sea. No more than 1 percent of them have died. If what happened in May is not repeated, then there will be no catastrophic consequences for the benthonic biocenoses.

The commission has for the present come to the conclusion: the death of the starfish and certain invertebrates, as well as seals, at the Summer Shore of Dvinskiy Zaliv occurred because of the short-term effect on them of a strong toxic substance (or substances) which possibly contained sulfur compounds (not excluding mustard gas). And where could this substance come from—until now it still is not clear. Even the persistent rumor about mustard gas that had seeped out of containers that ostensibly were buried in the White Sea at the end of the fifties does not nudge us toward an answer, because the presumed place of burial is too far from the area of the deaths of animal life. There is still one more opinion of the commission: there are for the present no foundations for considering that the whole water area of Dvinskaya Guba, and even more so the White Sea, has been affected by the poisoning.

The phrase "for the present," which does not yield clarity and determinacy, was repeated several times in the preceding paragraph. So many people and so many resources have been expended, and all of them just to certify the death of animal life from a strong toxin!

Despite the fact that not one of the stories made the ends meet, the feeling remains that the cause of the damage could be each of the six variants. Thus, if in May we would have had daily ecological information about the state of the gulf, the sea, and the shores, then the true culprit for the death of the starfish could hardly slip away. But now the ends are in the water.

Society should have regularly updated objective data about the land, the water, and the air for our industrialized planet. Obviously, it is time for the various "green movements" to be united into an independent international organization which would be made up of well equipped ecological posts with the appropriate rights.

....Only a few months after the death of the starfish in the area of the Pinega River (again in the Russian North!) suddenly the coniferous forests yellowed....Why? Assemble a commission again which will propose stories?

From the Editorial Board. A noteworthy detail: Despite the fact that the commission did not single out one of the six variants as the most probable, the so-called "military" story, thanks greatly to the press, became the most persistent and most popular. Thus, because of the events described, the newspaper DEMOKRATICHESKAYA ROSSIYA (No 2, 1990) published a list compiled by Aleksandr Odintsov of accidents on our nuclear submarines. (The accuracy of the information and its sources are on the author's conscience.)

One of the first accidents occurred in 1959—a reactor core broke down. From 1962 through 1967 the same thing happened on several submarines. The failures, said the author, were eliminated fairly easily—the compartment in the troubled state was cut out and hidden on the sea floor. Four similar power units were buried in the Kara Sea at a depth of about 200 meters. Then he recalled accidents in 1972, 1981, 1984 and 1986.

Aleksey Yablokov, Deputy Chairman of the Ecological Commission of the USSR Supreme Soviet, who was familiarized with Larisa Mironova's article by the editor, also was categorical. He directly connected the harm with the military's activity:

"We do not know at all the amounts and composition of the pollution which comes from naval bases. According to available information there are two areas in the White Sea where poisonous substances have been buried. I add to the cases cited in Larisa Mironova's article the fact that recently we have been throwing away a large amount of dead fish here and there on the White Sea shore. Cases of catching fish with body sores have increased in frequency. We are observing unusual deaths of birds. But the death of sea mammals—seals and white whales—in July and August? Does this not point to the thought of a constant source of poisoning?

"The rectangle plotted with a dotted line on a White Sea navigational chart does not give me peace of mind. "Dumping of explosives" is written on it in black and white. "Standing at anchor, the catching of fish by bottom-fishing equipment, underwater explosions, and operations for deepening the bottom are categorically prohibited." Just what is there? (True, such "rectangles" dot maps of the whole World Ocean. The practice of dumping military stores and other dangerous military playthings on the seabed has become an ordinary occurrence for many countries, especially since the second world war.—The editorial board.)

It would seem that the military themselves have caused this turn in public opinion. For it is almost impossible to make one's way into their archives and to examine even those documents which under modern circumstances are not secrets. Thus there also arises on the part of society excessive suspicion and bias against the army and the military- industrial complex.

Both "the imagination gives birth to monsters" and the ban on information lead to rumors and conjectures which have nothing in common with reality.

Of course the military and the industry that operates on the basis of it have introduced their contribution to the pollution of nature. But indeed, only they are sinful? And always do those who criticize the military proceed from unselfish love of the Motherland? And perhaps the presence of the army in certain regions simply disturbs someone? For example, to develop the richest diamond fields in Arkhangelsk Oblast jointly with foreign corporations. Or to create free economic zones...And so someone inflates the "military" stories in the hope of kicking defense facilities out of the coveted territory. It would seem that the contradiction of interests must be removed by reasonable compromises and mutual trust. What good is mutual disparagement.

Saratov Oblast Oil Spillage Said Due to 'Mismanagement and Confusion'

PM1504150791 Moscow SOVETSKAYA ROSSIYA in Russian 10 Apr 91 First Edition p 1

[Correspondent V. Zlobin report under the "Emergency Situation" rubric: "Oil Discharge"]

[Text] Saratov Oblast—A major accident has occurred on the Samara-Lisichansk main oil pipeline. As the result of a pipe rupturing near Seleznikha Village, in Saratov Oblast's Pugachevskiy Rayon, over 2,500 tonnes of oil has, according to preliminary figures, leaked into the Malyy Irgiz River, which flows into the Volga. Around 8,000 tonnes were poured into an emergency storage tank. The polluted area covers hundreds of hectares of farmland belonging to the "Borba za Kommunizm" Kolkhoz and 160,000 square meters of water in the Volga's tributary.

The pipe has a ragged gaping wound along its seam, through which a torrent of oil gushed under a pressure of 55-60 atmospheres.

However, the exact size of the rupture and the cause (someone did suggest, in passing, that it might be a manufacturing fault) remain to be established by expert examination. We, however, will turn our attention to how events developed when the thunderbolt struck. The river of oil erupting from underground gushed unchecked by anyone for more than 12 hours.

As we know, the malfunction in the operation of the oil pipeline was signaled at 0450 hours. The drop in pressure in the pipeline indicated a serious accident and the need for urgent reparative action to be taken. But operators needed more than 12 hours to locate the ill-fated gate valves 15 and 16 at the scene of the accident (it was like looking for a needle in a haystack), to shut them off, and to stop thereby any more oil gushing out.

But let us assume that there were objective obstacles. Were these really not envisaged during the design of the oil pipeline? Has the dreadful catastrophe which occurred near Ufa, which cost hundreds of human lives, really taught no one anything?

Enormous efforts are now being made to localize the consequences of the accident in Saratov's Volga region, prevent the discharge of oil into the Volga, and clean up the Malyy Irgiz River. Dozens of buses and fire engines have been brought in from the neighboring regions of Balakov and Pugachev in case the inhabitants of nearby villages have to be evacuated. Although A. Khadykin, chairman of Pugachevskiy Rayispolkom [rayon soviet executive committee], hopes that it will not come to that, he did deem it necessary to take precautions.

A wall of flame is blazing a few kilometers away from Seleznikha and Pavlovka: Specialists have set the escaped oil alight. As I gazed upon the huge blaze, I thought: That fire is the result of our mismanagement and confusion. They are costing us dear.

As reported to the SOVETSKAYA ROSSIYA correspondents' office in Saratov from the scene of the oil pipeline fracture, on the fourth day of the burning of the oil along an 8 km stretch of the Malyy Igriz River, the booms specially erected there to prevent oil flowing into the Volga have been breached as the result of an intense buildup of ice. Seeking to avert disaster, several emergency teams are hurriedly erecting a series of booms lower down the Malyy Igriz River.

At the same time on dry land, on the floodplain and along the ravine and gully, where a particularly large amount of oil has accumulated (and this amounts to hundreds of thousands of square meters of the "Borba za Kommunizm" Kolkhoz' prime pastureland), bales of old hay and straw and chaff—which should absorb the oil—are urgently being brought in.

"It is possible that it was really necessary to set the oil alight in this situation," Nikolay Korochkov, chairman of the oblast environmental committee said, "but it may not be effective. The lighter oils do usually burn off. However, the heavier ones remain, they penetrate deep into the soil, and their presence is felt for many years. That is why—throughout the world—everything is done, when such accidents occur, to prevent pollution of the environment by collecting the spilt oil. Only then is the remainder burned off."

The Volga Main Pipeline Administration, located in Samara, has been charged with polluting the environment and breaching environmental legislation.

Clear-up operations continue.

Chemical Pollution of Bashkiria's Belaya River Outlined

91WN0369B Moscow SELSKAYA ZHIZN in Russian 4 Apr 91 p 2

[Article by SELSKAYA ZHIZN special correspondent R. Budrina: "The Poor Agidel"]

[Text] **We usually think about the river only when something happens to it. And so it flows by itself, and it flows. Water and water. Like the air, like the sun.**

If you live on the Belaya River—fondly named the Agidel—you expect to take a bucket in your hand. You read again the EKO bulletin, which is published by Bashkiria's State Committee for Environmental Protection: there are phenols, nitrogen, chromium, copper and zinc....And all in amounts that far exceed the permissible—this is the "chemical content" of Bashkiria's main river. And petroleum products?

In Vizhbulyakskiy Rayon the drinking water of 5,000 hectares was poisoned. In Ufimskaya Rayon underground water was polluted for 80 square kilometers, and many communities have been deprived of water. In

Ishimbay, after the Belaya subsided into its riverbed, 382 hectares on its shore were polluted by petroleum products....

All this was extracted from local newspapers.

Who will save the river? God? Justice? Scientists? Someone must get close to the solution of the problem, as one rids oneself of "bold spirits."

This is the conclusion of Dmitriy Vyacheslavovich Zeyfert, an experienced hydroecologist and candidate of biological sciences, who is working in Sterlitamak: "The pollution of the Belaya is irreversible for 20 kilometers from the source of the discharges, even after they have ceased. A hundred kilometers of the river is unsuitable for drinking and cooking."

A scientist was dismissed because of a reduction in the staff.

Zeyfert invited in qualified specialists from Moscow State University's Soils Chemistry Department. But after they observed mercury in the soil, the Sterlitamakskiy Rayon Ispolkom canceled contracts with the higher educational institution without even an explanation of its motives.

There was a time when Bashkiria's ecologists were accepted seriously at the international level—they were invited to seminars, they were included in All-European monitoring, and there were efforts to help. Here is what that same D. V. Zeyfert wrote after a forum at Nalchik: "We were astonished that even specialists who were thousands of kilometers from Sterlitamak related with enormous sympathy to the harm to our city. They discussed proposals for partial financing of work on the state of the environment at Sterlitamak from international funds, about the assistance of foreign specialists in making analyses on pollution of the environment by organic and metalloorganic compounds, about free assistance in equipping the city with the necessary analytical equipment and reagents, and also with computer programs for personal computers. All the proposals were adopted with gratitude."

Now the foreigners are being frightened by the problems of Bashkiria—ecological impunity has taken this republic so far along.

The newspaper NABAT for February of this year said in the article, "What shall we drink?": "In Yermekeyevskiy Rayon the peasantry is defending their springs with pitchforks."

People are seeking protection from the courts. But what can the courts do if the 14 April 1990 decree of Bashkiria's Council of Ministers freed industrial enterprises from fees for using up natural resources? What fuel for ecological extremism!

I was talking with workers of the Kaustik Association, whose effluents are poisoning fields, the water, and the air. And here the Deputy Chief Engineer for Environmental Protection (!) complained about the obsolete equipment and the fines that they still have to pay to environmental protection institutions. But if only these measures had at least somehow restrained the growing avalanche of ecological damage that has literally collapsed the republic in recent years!

Bashkiria's interrayon environmental-protection prosecutor, although he has only four people on his staff and not a single (!) means of transportation, still is trying to find time for what is happening, to find and somehow to penalize the guilty in each separate case. But the trouble is that there are many cases, and too many of them have come up in recent years. The equipment of numerous chemical plants, oilfield facilities, and other enterprises has in time become unfit and requires replacement or overhaul.

Does the public understand all this? Only to a degree. At Chapayevskiy Sovkhoz in Ufimskiy Rayon, which is on the Belaya, for a long time now they have stopped bathing in the Belaya, and they drink water only from artesian wells. But they irrigate the vegetable fields from the river. One can only guess what the quality is of the produce obtained there, because there is no current monitoring over the way it is raised.

It has been estimated that each resident of the city of Ufa has sustained R312 worth of damage because of several powerful discharges of poisonous substances by Khimprom Association enterprises. But no one has calculated how much damage the countryside has suffered.

If even such a large river has not withstood the impact of industry, which is to be said about small ones? They are simply destroyed, first of all cutting down the forest. And as a result that same Agidel has become shallow. In the specialists' opinion, "as a result of depletion of the forests during the period 1941-1982, the flow pattern of the upper reaches of the Belaya has changed considerably."

Where are those laws, strict and active, which could protect the poor Agidel, and with it all of us, from ecological harm? No, we have not to this day introduced such laws. That is why ecologically dangerous enterprises continue to operate in the old way and with the old violations. It has happened that they have been fined individually. Even the republic's prosecutor still cannot stop them and force them to be concerned about the ecological safety of all life. The game goes on, on paper. And it should be time to end it.

Armenia To Create Environmental Protection Organ

NC2004113191 Yerevan ARMENPRESS International Service in Armenian 1215 GMT 18 Apr 91

["The Decision of the Armenian Republic Supreme Soviet on the Commissioning of Production Lines at the Nairit Scientific-Production Association"—ARMENPRESS headline]

[Text] Having studied the proposal of the Armenian Republic Council of Ministers for commissioning the production of chloroprene rubber and latexes at the Nairit Scientific-Production Association, the Armenian Republic Supreme Soviet decides:

1. To allow the Armenian Republic Council of Ministers to commission the production of chloroprene rubber and latexes at the Nairit Scientific-Production Association until 31 December 1995 within the existing capacity, and maintaining the existing ecological standards.

2. To instruct the Armenian Republic Council of Ministers to resolve the issue of bringing the Nairit Scientific-Production Association under full control of the republic during 1991.

3. To instruct the Armenian Republic Council of Ministers to find a respecialization plan for the factory within a year, and introduce relevant measures in the republic's socioeconomic plan as of 1992.

4. To create an environmental protection organ under the jurisdiction of the Armenian Republic Supreme Soviet.

The Supreme Soviet Standing Commission on Environmental Protection and Natural Resources should present the structure and functions of the aforesaid organ to the Supreme Soviet within a month.

5. To instruct the Armenian Republic Council of Ministers to divert all income from the operations of the Nairit Scientific-Production Association to a solution to the social problems of the population in Yerevan's southern industrial zone and adjacent areas. To present the package of measures in this direction to the Supreme Soviet within three months.

6. To consider invalid the 25 June 1989 decision of the Supreme Soviet of the Armenian Soviet Socialist Republic on the Nairit Scientific-Production Association.

[Signed] Ter-Petrosyan, chairman of the Armenian Republic Supreme Soviet; and Saakyan, secretary of the Armenian Republic Supreme Soviet.

[Dated] 17 April 1991, Yerevan.

Zalygin Outlines Criticism of Salykov's Aral Crisis Approach

91WN0334A Moscow IZVESTIYA in Russian 25 Mar 91 Union Edition p 3

[Letter from USSR People's Deputy S. Zalygin, chairman of the Ecology and World Association: "What I Disagree With and Why"]

[Text] During discussion of the question of the ecological situation in the Aral Sea basin at the 1 March regular session of the USSR Supreme Soviet, I expressed my misgivings to Comrade K.S. Salykov, chairman of the Committee on Ecology.

I will explain why I did that.

More than 30 million residents of the Aral basin find themselves in a zone of poverty today. I will cite just one fact: this region has the highest infant mortality rate in the world. I will not cite other facts of this nature; they are already well-known. But I will examine the question from the aspect of the activities of the Committee on Ecology.

At the end of 1989 the USSR Supreme Soviet adopted a resolution, the third point of which stated: "...Support competitive development of concepts for restoring the Aral Sea, and in 1990, present specific implementation proposals for the examination of the USSR Supreme Soviet."

A year and three months have gone by, children are dying in the Aral basin, and Comrade Salykov, at a Supreme Soviet session announces a draft of a "new" resolution, in which there are once again no concepts; and, he asks another six months to draw it up. Strictly speaking, there is nothing in this "new" document besides bureaucratic blather and wishes addressed to Lord-knows-who.

And the Supreme Soviet, although it is sending this draft on for processing, has uttered not a word of reproach to its committee.

The word "concept" has everyone hypnotized today, the moreso since it is very convenient to hide behind this word. And so Comrade Salykov too is hiding, since a concept on the Aral was prepared long ago in the works of Soviet scientists, specifically by Academician Yanshin's commission in 1983-1985.

But Comrade Salykov, no doubt thinking that the solution of all problems begins with him, is not interested in the results of previous works.

Furthermore, we speak of an "Aral catastrophe." But this is, after all, not an unexpected catastrophe at all: this was the result of carrying out the plans of the former Minvodkhoz [Ministry of Land Reclamation and Water Resource Management].

Minvodkhoz long ago anticipated (?!) the drying up of the Aral, and even produced maps on which the sea bottom was occupied with flourishing rice plantations. In order to achieve this goal Minvodkhoz spent billions and billions of rubles (It received approximately one-third of all capital investments in agriculture, over 12 billion rubles a year); and now the water conservationists are asking for more billions for restoration of the Aral (that is, in order to cover their own crimes, which are on an unbelievable scale).

The Supreme Soviet is providing the money. And that is understandable. But how can one remain silent about who is to blame?

Unquestionably, money for eliminating the catastrophe must be appropriated immediately (USSR Supreme Soviet Chairman Comrade Lukyanov has confirmed this); but to whom should it be given? Should it really be given to those very same water conservationists who despoiled the Aral? In my view, the monies should be given directly to the councils of ministers (and perhaps to the supreme soviets as well) of the republics which have suffered, bypassing the hands of those engineers who are only looking for more and more billions in budget appropriations, and after receiving them, to hold sway in the localities, and excavate as needed—and, moreover, when it is not needed, and devour the lion's share of these appropriations, placing orders for construction projects themselves.

This business must be changed. Let the republic councils of ministers place orders for a minimum amount of work by the water conservationists, and let them spend the remaining funds at their discretion for health-care, and for socio-domestic purposes as a whole.

Two directions have long since taken shape in attempting to solve the water problems of the Aral Sea and the Aral Basin. The first is—conserving the flow of the Amu Darya and Syr Darya, since 44 cubic kilometers are expended here for over-irrigation [perepoliva], which is in fact the principal reason for the water shortage, and "writing off" millions of acres of irrigated land. The second variant is to divert to the Aral Sea 27 cubic kilometers from the River Ob (To reiterate: 44 cubic kilometers are spent on over-irrigation!).

Of course, in my view, the second variant is simply another present to Vodstroy [Hydraulic Engineering]. According to estimates by scientists, the 2,350-kilometer long diversion canal and the ancillary projects will cost from 90-100 billion rubles, and construction will take about 30-40 years; but Vodstroy is ready to spend the money today. There is also a psychological aspect here: If the water conservationists receive millions and billions today (and in the near future, tens of billions and more), that means, their sins and crimes of yesterday are forgiven.

Strangely, the Committee on Ecology has not yet spoken up. And their silence is clearly to the benefit of Vodstroy.

Of course, the Ob-Aral transfer canal must not be combined with Kazakhstan's water needs for purposes of municipal water supply. These are two different things. We must not combine the two problems, water supply and irrigation. Such a combination, once again, benefits only the water conservationists.

The Aral is hardly the only ecological crime of the water-conservationists.

I will permit myself to recount only a few of them.

In its time Minvodkhoz undertook the transfer of the waters of northern rivers into the Caspian. The expenses amounted to hundreds of billions of rubles when the project was abolished for insolvency.

The Danube-Dnepr transfer-canal project was abolished (the Lake Sasyk Estuary was ruined).

The Volga-Chogray transfer-canal project: construction was cancelled. Hundreds of millions of rubles were spent, and huge expanses of steppe were spoiled.

The Volga-Don Basin canal project: cancelled at the height of construction, principally owing to the intervention of the people of Volgograd.

Construction of the Leningrad flood barrier: it was turned down by nearly a dozen impact assessment commissions, but work stubbornly continues, now even with the help obedient foreign experts (and this means hundreds of thousands of dollars); although even without the experts it is already clear that the construction is defective, because before building the barrier, it is necessary to build purification facilities.

However, the purification facilities have been put in second place, since it is much more profitable to build the barrier; and so the builders are creating a cesspool, and from henceforth the cesspool will be at the disposal of the city of Leningrad. The protests of the Leningrad Soviet are to no avail. It too is powerless before the titanic agency.

Construction of a dike at the mouth of the Karabogaz River: once again billions of rubles and mind-boggling losses, and they will be felt for decades to come.

And, I repeat, the Aral catastrophe—the safe bastion of Vodstroy, must be added to this list of horrors as well.

One should also remember that over 3.5 million hectares of irrigated lands (more than all of Belgium) have been "written off." Nowhere else on earth is their even such a term "writing-off" of land; but with us it is practiced as something routine; and this "writing-off" takes place under the aegis of those same water conservationists.

The value of the written-off and despoiled lands amounts to approximately 1.5-2.0 trillion rubles.

If the water conservationists are not judged, and not even called by name; if every means is taken to hide their names from the populace, then future catastrophes are guaranteed.

Is it necessary to judge the criminals? It is necessary!

There is a multitude of lawsuits and complaints, some drawn up and some not yet completed—in Volgograd and Rostov Oblasts; in Belorussia where lands in the Pripyat Basin have been drained to excess; in Siberia... But instead of this, these very same water conservationists are receiving new billions for "restoration of the Aral," with the quiet (and at times not so quiet)

patronage of Comrade Salykov. And that in fact is why I am speaking about all these facts, have spoken and will of course continue to speak, I and many other specialists; but from Comrade Salykov never a word? Or is he not acquainted with these facts? Then how on earth can he lead the committee? Is it not because a merger is taking place here between the agency and such organs as our Committee on Ecology?

The Minvodkhoz people refuse to take any responsibility, adopting the rather guileless camouflage, that over a two or three year period they were changed from Minvodkhoz into Minvodstroy, from Minvodstroy into the Vodstroy State Concern, and this state concern is covered by the Aral Consortium, which has been approved (once again as the "sole client") by the Council of Ministers, even without a charter. Now, it is as if Vodstroy-Aral bears no responsibility for the actions of Minvodkhoz-Minvodstroy; but you see, in all these organizational hypostases, they were led by and are still led by the unsinkable Polad-Zades, husband and wife. She—in her position planned the "prospects," and he—in his position as deputy minister carried them out, as he does today as leader of the Vodstroy Concern. Like it or not, one must suppose that, without support from somewhere out "there," things would not turn out this way.

And what has the committee done in all those regions where transfers, excessive drainage, over-irrigation and writing-off of lands took place? It has not done a thing. It has not participated in one single cancellation of construction projects of this type, and has not even expressed a definite attitude toward them.

Comrade Salykov receives P.A. Polad-Zade at sessions of his committee as a welcome visitor: "Please, please offer your proposals to our committee; we shall always support you!" And, so to speak, they are old acquaintances: Comrade Salykov was first secretary of the Karakalpak Oblast CPSU Committee, and his contacts with Comrade Polad-Zade are solid. The USSR Supreme Soviet draft resolution on the Aral initially contained (under the pressure of certain deputies) a clause on establishing a commission to determine the guilty parties in the Aral catastrophe; but by the time the text was finalized it was no longer there.

Incidentally, what does one need a commission for if a crime has been committed? This is not a matter for commissions, but for the procuracy.

Comrade Salykov has never worked in ecology before, and could not even tell you what this term means.

You see, I have already spoken of this at a session of the USSR Supreme Soviet, and I am forced to repeat it right now in order to attract public attention; the more so, since not one single newspaper has said a word about my speech.

I would like to call attention to yet another problem: as long as we have no prices for land, nor for water, we shall continue to use them senselessly and in a criminal manner. (The Committee on Ecology is not even close to answering these principal questions.)

I agree, the land question is more complex, but the question on the cost of water has been raised for many years already; it met with no opposition from any side, but the matter has not budged an inch.

The hydraulic engineers, it is true, understand the matter in their own way: they want to trade in state water—it goes without saying, at a profit for themselves.

And yet another astonishing thing; as soon as we have another ecological disaster, thousands of volunteers will rush up, and will grow fat on it. And dozens of commissions, research institutes, committees, etc., will be created.

Now, I am certain, Comrade Salykov will respond like this: "But we are establishing, and have already established so-and-so-many commissions, and such-and-such an institute!"

They can establish all they want, but to this day no concept on the Aral has been adopted, and children are still dying in the Aral Basin... And there is still no realistic analysis of the state of water conservation.

The committee has not once sent any cases to court or to the procurator. Does that mean that everything is in order, and no crimes have been committed against the environment? But on the other hand, the idea has been submitted to establish a special ecological procuracy. What for? So that they can put their own people there too? (Whoever establishes a new organization becomes its master.) So that they can fragment the already existing procuracy, and take all the environmental protection cases away from it? Would it not be better to strengthen the procuracy which already exists, and not commence unjustified undertakings?

This is why I have expressed my lack of confidence in the chairman of the Committee on Ecology. It seems that this is the first such instance in the history of the USSR Supreme Soviet.

And this is why even now I consider it necessary to appeal over and over to the USSR Supreme Soviet through the press, to pay attention to the water and land problem. We stand here on the brink of a national disaster, but because of political debates and ambitions, we are putting it off for the future.

I speak only about the problem of the land and the water because, nearly all significant life is connected with them; but I do not think things are any better in other ecological areas. If we do not do anything today, by tomorrow it will be too late. Even if we solve the problems of the market, the economy, and politics—nothing will help: it will be too late.

And one final question: To whom shall we entrust our future, and into whose hands has it fallen?

P.S. The Ecology and World Association requests that all those organizations which have filed (or are filing) lawsuits against Minvodkhoz-Minvodstroy, and Vodstroy, inform us of this.

REGIONAL AFFAIRS

Baltic Bridges Seen Harming Environment

Oresund Plans Attacked

91WN0378A Copenhagen BERLINGSKE TIDENDE in Danish 9 Mar 91 p 3

[Article by Jesper Olsen and Trine Baadsgaard: "Environmentalists Fear Bridge"—first paragraph is BERLINGSKE TIDENDE introduction]

[Text] The Oresund link will mean crucial changes for animal life in the area. Animal life in the area around Saltholm will be especially disturbed by the construction of the bridge.

Conservationists and fishermen fear the consequences of the Oresund bridge for animal life in the Oresund and the Baltic Sea.

The environmental report on the Oresund bridge was released yesterday and its conclusions were sharply criticized by the Danish Conservation Society:

"The bridge solution that was chosen will have immeasurable consequences for the environment, especially in the Oresund and the Baltic Sea," said the director of the Danish Conservation Society, David Rehling.

The report, which was written by the Traffic Ministry, the Woods and Nature Administration, and the Environmental Administration, among others, divides the environmental effects of the bridge into the immediate vicinity and a more remote area.

The remote area mainly includes the Baltic Sea, where the cod population is very dependent on the inflow of salt water through Kattegat.

The report on the Oresund traffic link maintains that the salt content of the Baltic will not be substantially affected by the bridge.

The Danish Conservation Society does not agree.

"The Oresund link's plan for an artificial island will interfere with the flow of salt water and that will totally destroy the necessary living conditions for cod in the Baltic Sea," society Director David Rehling said.

The water in the Baltic Sea has a low salt content of seven to eight parts per thousand and even a small decline will destroy the cod's chances of survival.

Salt Balance

Professor Tom Fenchel of the Marine Biology Laboratory in Helsingor said:

"I will not assess the bridge's possible effect on the salt balance, but it is quite certain that even a very small decline in salt content—from 1 to 2 parts per thousand—would drive the cod away."

The environmental report says that in the immediate vicinity—an area of approximately 10 square kilometers around Saltholm—the bridge will totally eliminate the last dozen seals in the Oresund, disturb one of Europe's most important bird sanctuary areas and remove several spawning grounds and nursery areas for a number of fish and shellfish species.

In particular the construction of the artificial island and the removal of several million cubic meters of sea floor will have an immediate adverse impact on animal and plant life.

"The artificial installations off Saltholm and on the coast of Amager will destroy some spawning grounds and nursery areas for a number of fish species, but the areas will undoubtedly restore themselves. It is primarily fishing activities that will be interfered with by the digging during the entire construction period. At any rate that has been the experience of fishermen in the Great Belt," said state biologist Ole Bagge of the Danish Institute for Fishery and Marine Research.

So far the Central Association of Oresund Fishermen has protested in vain against the building of the bridge:

"The digging activity will fill the Oresund with mud and it will destroy fishing possibilities for many years," said an infuriated Erik Sorensen, president of the 150 Oresund fishermen.

"We are therefore requesting that 120 million kroner be set aside to revitalize the Oresund, but we do not have high hopes. Everything has obviously been decided in advance before anyone could protest."

Germans Also Concerned

91WN0378B Copenhagen BERLINGSKE TIDENDE in Danish 9 Mar 91 p 3

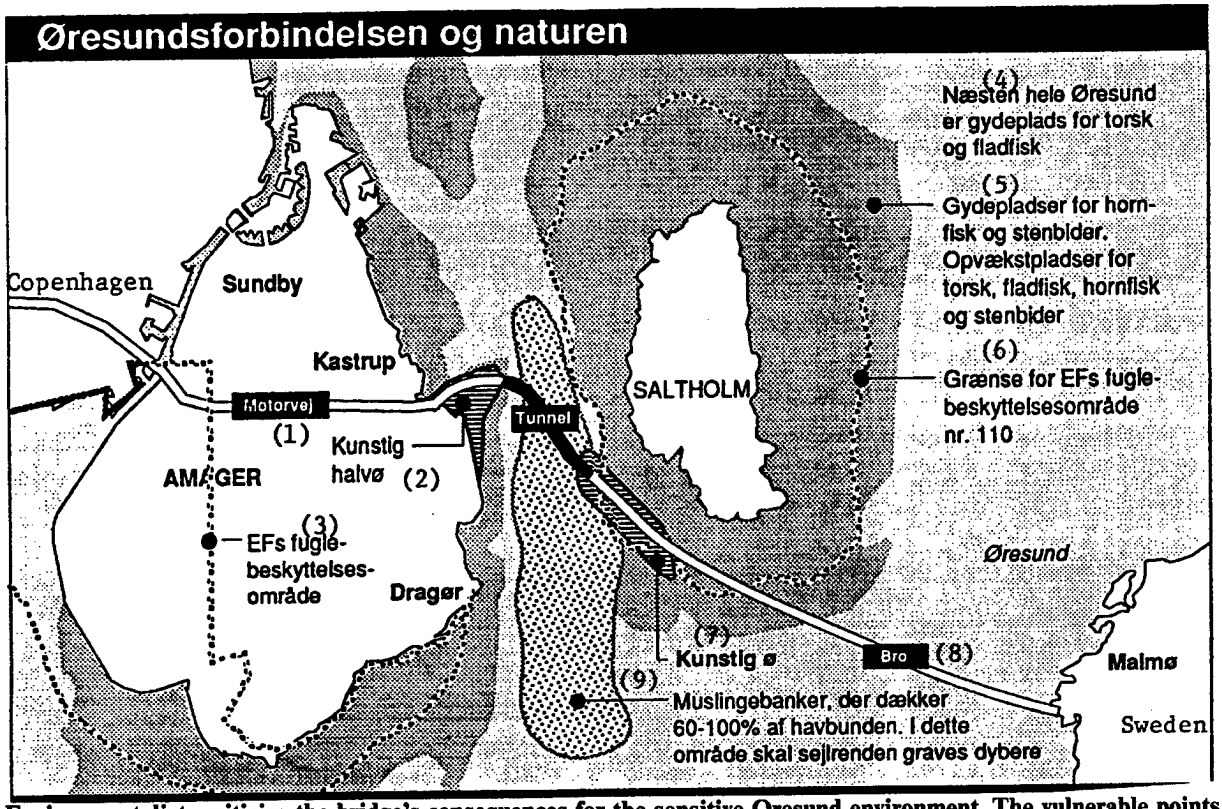
[Article by Niels Norlund and Jorn Mikkelsen: "Sweden Will Let Denmark Decide"—first paragraph is BERLINGSKE TIDENDE introduction]

[Text] Denmark and Germany must arrive at an agreement on a traffic link across the Femer Belt. Sweden will not put pressure on Denmark in the negotiations on the Oresund bridge to decide on a specific type of link, according to a top Swedish official.

The Swedish Government will not put pressure on Denmark in the negotiations on the plans for an Oresund bridge to win approval for a specific kind of link across the Femer Belt. The Danish and German Governments are the ones who must agree on a Baltic Sea link and at most Sweden will indicate its wishes.

This is apparent from statements made by a high-ranking Swedish official who is a member of the delegation that is discussing the details of a planned Oresund bridge with Traffic Minister Kaj Ikast (Conservative).

The Oresund Link and the Environment



Environmentalists criticize the bridge's consequences for the sensitive Oresund environment. The vulnerable points are shown here.

Key:
1. Highway
2. Artificial peninsula
3. EC bird sanctuary area
4. Virtually the entire Oresund is a spawning ground for cod and flatfish
5. Spawning ground for garfish and lumpfish. Nursery area for young cod, flatfish, garfish and lumpfish
6. Boundary of EC Bird Sanctuary Area No. 110
7. Artificial island
8. Bridge
9. Shellfish beds that cover 60-100 percent of the sea floor. Deeper channels will be dug out in this area.

"We have said that we are very interested in a Femer traffic link. But what type it will be is something the Danish and German Governments must decide. Of course we have certain wishes, but we have not expressed them yet. And there is no question of putting pressure on the Danish Government in connection with the negotiations on the Oresund bridge to approve a certain type of link across the Femer," said Highway Director Birger Hook.

A spokesman for the Traffic Ministry in Kiel said yesterday that Schleswig-Holstein rejects the idea of a bridge across the Femer Belt that will handle only motor traffic. This kind of road connection is rejected with reference to the estimate that trucks will emit three times as much pollution as trains and require almost twice as much energy.

In Bonn a spokesman for the Federal Traffic Ministry said that the planning of Germany's major highways—to which a Femer bridge would belong—is essentially a federal matter. But in preparing the Federal Republic's highway traffic plan the government in Bonn will also pay close attention to suggestions from the governments of federal states. And the spokesman did not believe the Federal Government would insist on implementing a road or bridge construction project that a local government seriously objected to.

The spokesman also said that no decision has been made on electrifying the stretch of railway between Hamburg and the border. The issue will be taken up again, but no decision of any kind has been made yet.

BELGIUM

Country's Ecological Conditions Surveyed

91CH0480A Prague DOKUMENTACNI PREHLED in Czech 25 Feb 91 pp H5-8

[Article: "The Ecological Situation in Czechoslovakia"]

[Text] With regard to the quality of the environment, Czechoslovakia is the worst or second worst place in Europe. At that, the Czech Republic is worse off than Slovakia.

The overall status of all environmental parameters is very bad and virtually none of them is improving. Our republic is among the worst contaminators of the environment in Europe, and in the immediate future this status will likely still get worse because the majority of European countries are gradually improving their environment. Unavoidable consequences include considerable economic damage, damage to human health, and, in comparison with world averages, a declining average length of life.

Facts on the Environment

Czechoslovakia occupies tenth place in the world with regard to the intensity of utilizing mineral raw materials, as expressed in comparable values of extraction per square kilometer. Every square meter of territory yields an annual average of five-seven kg of material which is gradually changed into waste, some of which is even toxic. Thus, the per capita quantity of solid wastes per year amounts to 35 tons for each citizen of the CSFR.

In 1988, Czechoslovakia was in second place in Europe, following only the GDR, with 22.4 tons per year of sulfur dioxide emissions per square kilometer; only seven countries had measurable territorial emissions of sulfur dioxide which were greater than 10 tons/km^2 per year and virtually one-half of the countries in Europe recorded emissions lower than five tons/km^2 per year. In North Bohemia Kraj and in Prague, the standard territorial emissions exceeded 100 tons/km^2 per year.

The treatment of water causes a substantial loss in the biological and sensor characteristics of potable water; however, even after treatment, the quality of the water found in the majority of water supply lines (57 percent) is not up to standards commensurate with Czechoslovak Standard No. 83 0611.

Soil is being substantially degraded in terms of mechanical, physical-chemical, biological, and agronomic terms so that, for example, of the total 4.3 million hectares of agricultural soil in the Czech Republic, 1.8 million hectares are threatened by water and wind erosion. The use of heavy equipment causes an undesirable compacting of the soil, increases the quantities of heavy metals and toxic materials, and, on the other hand, causes a decline in biogenic elements.

Since 1937, the use of industrial fertilizer in the Czech Republic has increased 20-fold, on average, and the consumption of nitrogen fertilizers has even increased 30-fold.

As a result of the eutrophication of water, the number of ducks, moorhens, and other groups of waterfowl has declined up to 90 percent in southern Bohemia and in southern Moravia.

In areas impacted by emissions, the yield of agricultural crops has declined by up to 40 percent.

Some 54 percent of electric energy is produced in ecologically intolerable thermal power plants, the erection of desulfurization facilities is very capital-intensive and of little effect. Some 25 percent of the energy is produced by relatively more ecologically acceptable nuclear power plants; however, their existence is connected with a number of not completely resolved problems such as, for example, the safety of operation, the high cost of land acquisition, and the quantities of water consumed, the storage of radioactive waste, etc. Hydroelectric power plants produce approximately five percent of ecologically clean energy; however, their erection has frequently resulted in negative incursions being made into the countryside. The primary hydroelectric potential in the Czech Republic is utilized today to an extent of approximately 48 percent, in the Slovak National Republic it is 30 percent—and this is a very low percentage in comparison with some European countries (for example, in Italy the figures are 78 percent; in United Germany 76 percent; in Austria 72 percent; in Switzerland 72 percent; in Bulgaria 73 percent). The remaining energy is acquired by importation from the USSR (five percent) and in enterprise power plants (11 percent).

Unsuitable fodder, an ecologically unsuitable method of raising livestock, the low and inefficient level of the zootechnical personnel caring for these animals are reasons for the low quality and health-impaired nature of animal-based food products. Man, who stands at the end of the food chain, acquires up to 75 percent of harmful agents impacting upon him precisely from foodstuffs. Pathologists are finding that the muscle tissue, the organs, and the fats of autopsied children contain far more toxic substances than do the bodies of deceased old people.

In the Czech Republic, 55 percent of the forests are damaged. While the forests began dying off on a mass scale as early as the end of the 1950's in climatically exposed hilly regions of the Krusne Hory Mountains and while this process continued for 15-20 years, it took and will take 10-15 years in the Jizerske Hory Mountains and in the Krkonose Mountains; in the Beskydy Mountains, in the period 1978-79 (following the sudden influx of arctic air) there was a virtually one-time disastrous dying off of the forests which had been weakened over a long period of time.

Endangered Regions

Some 5.8 million inhabitants (that is to say, a full 57 percent of the inhabitants of the Czech Republic) live in an extremely or heavily disrupted environment (in other words, in the last of the five categories of environmental levels), which represents over seven percent of the land area of the Czech Republic. The territory which has a relatively high level of environment is concentrated primarily in the southern part of the Czech Republic on 13 percent of the territory of that republic. It houses a mere 700,000 inhabitants (that is to say, 6.7 percent of the population). The inhabitants of the entire North Bohemia Kraj, the city of Prague, and the predominant portion of the territories of Central Bohemia Kraj and North Moravia Kraj virtually have no opportunities to live and enjoy recreational activities in a high-quality environment.

By Government Resolution No. 76/1980, the last of a series of resolutions dealing with endangered regions, eight endangered regions were identified:

- the city of Prague—495 km^2, number of inhabitants—1,206,143;
- the Ostrava-Karvina region—429 km^2, number of inhabitants—524,182;
- the Usti-Chomutov region—2,508 km^2, number of inhabitants—560,174;
- Brno—230 km^2, number of inhabitants—371,463;
- the Hradec-Pardubice region—519 km^2, number of inhabitants—238,429;
- the Sokolov-Karlove Vary region—824 km^2, number of inhabitants—196,006;
- Plzen—124 km^2, number of inhabitants—174,571;
- Melnik—307 km^2, number of inhabitants—80,480.

Previous resolutions of the Government of the Czech Republic covering impacted regions dealt with regulating production, which is the principal factor of the extreme violation of the environment suffered by the impacted regions only by the proclamation method. The result was only a series of consequential and insubstantial measures to benefit the impacted population (free midmorning snacks for schoolchildren, school held in the open, and, in the case of four okreses in North Bohemia Kraj, stabilization subsidies paid to part of the work force). Not even the cleanup of the partial sources of environmental devastation brought about the required improvement. The measures were more symbolic in significance and could not expressly result in suppressing the effects of environmental violation and the health of the populace.

Average Length of Life

One of the indicators of the status of health of the population is the anticipated average length of life. With respect to children born in 1988, it is anticipated that both sexes will reach an average age of 71.6 years. If Czechoslovakia was in eleventh place in comparison with other European countries in 1960-65, then its position dropped to twentyfirst place in 1980-85.

Average Life Expectancy of Newborns in Some European Countries in 1985

Item	Iceland	Sweden	France	Italy	Germany	Great Britain	Hungary	CSFR	USSR
Males	74.7	73.6	71.3	71.4	71.2	71.4	65.6	67.3	62.9
Females	80.2	79.5	79.4	78.1	77.8	77.2	73.2	74.7	72.7
Both sexes	77.4	76.6	75.4	74.8	74.5	74.3	69.4	71.0	67.8

FRANCE

Environmental Audit Firm Established

91WN0372A Paris L'USINE NOUVELLE in French 28 Mar 91 p 61

[Article by Pierre Laperrousaz: "Environment: Who Will Evaluate the Companies?"]

[Text] A new profession is being born. Qualifications and professional standards remain to be determined....

Industries will soon have to do more than just proclaim their ecological good intentions: They will have to prove their claims and support them with statistics. The Commission of the European Communities is preparing a directive that will oblige them to make periodic environmental audits (probably starting in 1992). Along the same lines, France's National Environmental Plan calls for every company to prepare an ecological balance sheet, just as it prepares an economic and social balance sheet.

Who is going to draw up these balance sheets and conduct the audits? Who will guarantee their authenticity and truthfulness? After all, people can put whatever they want on a balance sheet. Will companies have to employ environmental accounting experts and auditors?

Bruno Heinz, founder of the Ecobilan company, thinks so. "A new profession is being born," he explains, "and its field of action goes far beyond the satisfaction of regulatory requirements. Any company takeover should be preceded by an environmental audit, if one wants to avoid unpleasant surprises."

Such audits are already a prevalent practice in the United States, where 2,000 are prepared each year in the state of Massachusetts alone. "The environmental audit

is also a strategic decision tool, for example when one must decide between a productive investment and an antipollution investment," Heinz adds. "And it is safe to predict that 'eco-reports' for products are going to become increasingly common with the advent of 'green labeling.'"

What qualifications must the new professionals meet? "They must be men capable of quickly understanding a manufacturing process and dialoguing with technical, managerial, and juridical interlocutors.... Graduates of the Ecole Polytechnique would probably fit the bill rather well," says Heinz. Himself a graduate of the institution, he established Ecobilan early this year, after stints at the regional industry directorate and at CERNA [expansion unknown], a research center of the National School of Mining Engineering, where he developed a methodology for ecological auditing. Then he quickly recruited five associates, all of them either Polytechnicians or graduates of "Agro" [probably National Agronomy Institute]. But standards remain to be set, a professional code of ethics needs to be drawn up, and generally acceptable vocabulary and methodology must be adopted. This is the task which fifteen or so European specialists—most of them academics—have set for themselves in organizing a "Life Cycle Analysts Society."

Dispute Over River Pollution Responsibility

91WN0376A Paris LE MONDE in French
4 Apr 91 p 34

[Article by Patrick Desavie: "When the Presumed Polluter Can't Pay..."—first paragraph is LE MONDE introduction]

[Text] Solvent-filled drums were found near a river in Essone. The small company presumed to be responsible does not have the financial resources to eliminate the pollution. Public authorities are looking for a solution.

Underneath the greenery: toxic waste. Hidden away in the basement of the storage area of the Hurepoix Chemicals Company (Gerber establishments) in Sermaise, along the Orge River in the Essone region, are drum containers of solvents. This dumping ground, which is at least 20 years old, is allegedly the cause of serious pollution of the groundwater table.

The administration has exhausted its arsenal of regulatory weapons for forcing the company to remove the waste and decontaminate the land. To no avail. The latest act to date consisted of issuing a prefectural decree on 26 November, 1990, ordering the company to deposit the sum of 20,043,400 French francs [Fr] to the chief treasurer and paymaster. It represents the amount the National Agency for Restoration and Waste Elimination (ANRED) estimates will be required to clean up the site. But the polluter-pays principle that the government wants to apply is running up against reality. The Gerber establishments are apparently unable to disburse such a sum. For 1987, 1988, and 1989, the annual sales of this five-employee small business were reportedly less than Fr3 million. Consequently, it is likely that the Ministry of the Environment will have to initiate a cleanup procedure as part of its general duties and assume the expense itself, hoping for a very hypothetical payback.

Environmental activists think the situation is dragging on. They are urging public authorities to expedite action to clean up this national "black mark" of dangerous waste (ANRED booklet of May, 1985).

The affair has lasted eight years. In March 1983, measurements done on the Sermaise drinking water catchment revealed significant pollution. "Chemical analysis showed a rate of 143.1 micrograms per liter of carbon tetrachloride, or 50 times the level recommended by the World Health Organization," explains Mr. Bruno Genty, of the Departmental Essone Union of Associations to Protect Nature (UDADNE). Carbon tetrachloride is a volatile organic compound that very quickly evaporates in the open air, but that can persist for several years, even several decades, in underground water. When ingested, it can cause cellular necrosis of the liver and kidneys and damage to the nervous system. In 1984, the Sermaise catchment was closed and the water source condemned. The faucets of the inhabitants of the small village were initially hooked up for several years to the neighboring Dourdan network, and are now connected to the new Sermaise catchment.

Diverting the River

Who is doing the polluting? A classified installations inspectorate investigation of different manufacturing establishments in the region showed in June 1983 that only the Gerber establishments, who specialize in the regeneration of solvents, used carbon tetrachloride. A note from the Essone prefect to UDADNE in October, 1984, pointed out two further facts: The catchment upstream of the Gerber factory installations is not polluted; on the other hand, significant downstream pollution is noted. In the same document, the prefect mentioned the existence of "several holes containing liquid products" on the grounds of the Gerber establishments, and confirmed "the presence of leaky drums before 1975."

This waste dump may not be the only one responsible for the pollution. There is also a dump in the neighborhood. But for UDADNE there is no doubt. "Drum containers have been pierced and their contents continue to seep into the ground," explains one of its officials. According to ANRED's Rene Goubier, "several hundred drums are reportedly underground." The company's management, for its part, refuses all comment.

UDADNE is demanding that "rehabilitation work begin as soon as possible." The prefecture would like to start work this summer, when the Orge waters will be at their lowest levels. Indeed, according to experts, the course of the river will have to be diverted to decontaminate the site according to regulations.

Renault Using New Materials for Recyclable Auto

91MI0175X Milan ITALIA OGGI in Italian 10 Jan 91 p 37

[Article by Andrea Simplici: "A Car To Recycle"]

[Text]The French have found the right name: MOSAIC. However, it is just an acronym that hides an endless phrase: "Optimal Materials for a Car Structure to Innovate Design." Renault has revealed that it is designing its own modular car, a mosaic of new materials, light alloys, plastic, and steel. In a brief two-page release, Renault has presented the recyclable car, a study on the possibilities of reusing single car parts when cars are demolished.

MOSAIC is looking for new materials for car construction. "We want to choose the most appropriate materials for every single operation in a car," Renault explained, "and establish a close link with automotive manufacturers and materials producers." This project overlaps in part with RECAP, a project in which chemical and automotive industries examine the different ways of reusing individual car parts.

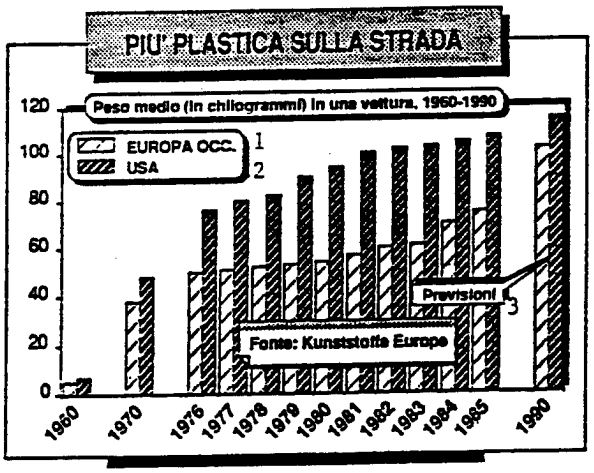
In addition to Renault, seven leading industries will be seated around MOSAIC's tables. Ciba-Geigy will work on structural adhesive products (resins which can resist mechanical stress), DSM will work on light, highly resistant composite materials. Hydro-aluminion will study light alloys, and Sollac, steel. Montedison and Enimont will examine the latest developments in plastics for the final central and rear sections of the future Renault.

The MOSAIC car will appear on the test tracks in early 1993 and production is scheduled to start in 1995. The first investments will amount to 350 million francs over a three-year period.

Plastic is transforming the skeletons of the cars of the next decade. Thirty years ago, a glorious Fiat 1100 came off the assembly lines in Turin with less than two kg of plastic inside it. The car itself was a big metal box. Today, the plastic in a Lancia Prisma weighs one tonne. On average, a European-built car has 22.5 kg of polypropylene. Panels, dashboards, windows, seats, applications in the engine compartment: plastic is reshaping the car of the future. Montedison calculates that over the next five years, each European vehicle will contain at least 40 kg of plastic. The 60 pieces of polypropylene in the cars of today will rise to 110 within three years, and will become 200 in the year 2000: For example the first Fiat car to be manufactured with a plastic bumper was the Fiat 128, 15 years ago. Today, 85 percent of the models have plastic bumpers, a percentage that will rise to 95 percent over the next three years.

Lighter cars (thirty years ago a car weighed 1,200 kg, today it is down to 975) with an increased aerodynamic coefficient (this was halved between 1960 and 1990, dropping from 0.5 to 0.28) that will provide some environmental relief. Technicians at the Ferruzzi company say: "This will definitely be a car that will use less fuel, pollute less, and that will allow for significant energy savings."

More Plastic on the Road. Average wieght (in kg) in a car, 1960-1990.



Source: Kunststoffe Europe 1. West Europe—2. United States—3. Forecast

GERMANY

Max Planck Microbiology Institute Opens

91MI0203X Bonn WISSENSCHAFT WIRTSCHAFT POLITIK in German 30 Jan 91 p 7

[Text] The Max Planck Institute of Terrestrial Microbiology has started work in Marburg. It specializes in research into the ecology of microorganisms—bacteria, fungi, and protozoa—in soils, areas susceptible to flooding, and damp grounds. The scientists appointed by the Max Planck Society board to direct the institute, Professor Rudolf Hauer from Marburg University and Professor Ralf Conrad from Constance University, took up their posts at the beginning of the year.

The various ecosystems are currently being studied in Bayreuth, Goettingen, and Marburg. The areas covered by the new Max Planck Institute of Terrestrial Microbiology include biogeochemistry. This department is studying the extent to which the metabolism of microorganisms in the soil—the formation and conversion of methane, carbon monoxide, nitric oxides, and hydrogen—depends on individual local factors. In parallel with this study, ecophysiological aspects are also addressed using laboratory tests to explain the behavior of individual microorganisms in their natural habitats. Biochemistry is another important subject; it will throw light on the molecular mechanisms of microbial metabolism, the enzymes and coenzymes involved, and the reactions that they trigger. Last but not least, the "organismic interactions" section studies the interactions of

microorganisms both with one another and with higher organisms in the soil and examines the modifications that microorganisms are undergoing as a result of environmental factors.

The new director, biology professor Ralf Conrad from Konstanz, heads the biogeochemistry department. His research to date has focused primarily on the formation and consumption of atmospheric trace gases as a result of bacterial activity in different ecosystems and on the sources of and sinks for anthropogenic, or man-induced, nitric oxides.

His colleague, Professor Rudolf Thauer, who is head of the biochemistry department, has been professor of microbiology in the Phillips University biology department in Marburg since 1976. Thauer is one of the scientists who have applied thermodynamic principles to microbial biochemistry, thus adopting a new approach to the study of energy metabolism in microorganisms. The new Max Planck institute has been set up in Marburg because the local university has strong biochemistry, genetics, microbiology, and ecology departments and also hosts the German Research Association's special research program on ecophysiology. The institute will work on university premises and in a provisional building until its own building is ready.

Thyssen Invests in Recycling Systems in Eastern Laender

91MI0242A Wuerzburg UMWELTMAGAZIN in German Jan-Feb 91 p 73

[Text] Thyssen Engineering and the Leipzig-based firm Takraf have concluded an agreement on the joint construction of waste reconditioning and disposal plants and the dressing and decontamination of polluted soils. The new Thyssen Takraf Environment Systems GmbH is already working on environment projects in Leipzig. Thyssen also intends to go into water supply and waste water disposal in the area between the Baltic Sea and the Erzgebirge range jointly with the French Lyonnaise Water Company. An initial project involves the development of an operator model for the city of Rostock. All told, the Thyssen Group is already conducting 36 joint ventures in the [former] GDR. Forty more joint projects are in preparation. The company has more than 100,000 employees, and the millions invested are into three figures. For instance, the reconditioning company Thyssen Sonnenberg is taking over four metal recycling companies where 1,000 local employees will be working.

ITALY

Urban Air, Noise Pollution Worsening

91WN0362A Rome L'ESPRESSO in Italian 7 Apr 91 pp 32-33

[Article by Carlo Gallucci: "Rome Under Smog"]

[Text] Rome—The image of the "cop" in Piazza Venezia directing traffic with a mask covering his mouth has gone around the world, obliterating the memory of other "inevitable" traffic jams. That white mask, also worn by the latest, determined cyclists of the capital, has become the symbol of the city suffocated by automobiles. But while on several occasions in Milan the order was issued during the winter to drive one's car only on alternate days, Franco Carraro, mayor of Rome, has never gone beyond simple "recommendations." And that was only after Gianfranco Amendola, the Green Eurodeputy, had raised a violent controversy, rendering public the scarce data available on air pollution in the city.

Unlike the Lombard capital, the capital of Italy actually still has no municipal monitoring network. Hence, the information gathered by the Green Train is most welcome. It is a traveling laboratory organized by the Environmental League and State Railways, with the collaboration of L'ESPRESSO (and this year's sponsors are the Saint-Gobain and Duracell Companies).

Rome. Carbon monoxide is a gas produced by combustion. Each year many persons die because of it, suffocated inside an automobile left with the motor running in the garage, or slipping from sleep to death because of fumes escaping from the chimney of the household furnace. And each day Romans are forced to breathe a quantity of carbon monoxide exceeding limits fixed by the law on air quality to ensure citizens' health. Likewise, the concentration of nitrogen dioxide (another gas produced by automobile motors) and hydrocarbons (some of which are highly carcinogenic) exceed the regulation threshold.

These data confirm the most alarmist forecasts. And yet, leaders of the Environmental League report that administrators do not even manage to provide the information to which Romans have a right. The imaginary regional network for monitoring atmospheric pollution is an illustrative example. Planned two and a half years ago, in November 1989, the Region signed a contract for its construction (value 4 billion lire) with the Selenia-Philips consortium. The entire system, made up of 27 switchboards (eight in Rome), was to be delivered in "turnkey readiness" within a year. But the network has not yet begun to function.

If that is the situation concerning atmospheric pollution, for whose reporting there is an eight-year-old law, who knows how long one must wait until noise, the other grave form of urban pollution, is brought under control. The decree signed recently by Giulio Andreotti provides that the limit of 70 decibels can never, in any hour of the day or night, and in any place (not even in industrial areas), be exceeded. In residential zones the threshold is fixed at 55 decibels. In Rome, however, the Green Train's noise meters measured a level of noise pollution higher than the 70 decibels, always and everywhere. And in this case, too, the principal source appears to be automobile traffic.

Macerata. Even in the little Marches center, citizens' psychic and physical health appear constantly undermined by noise. The limits set forth in the recent decree-law are never observed: both in the historical center (the measurements were taken on the via Santa Maria della Porta) and in the vicinity of the public hospital, as well as in the outskirts (on the via dei Velini). However, the atmospheric situation appeared less serious, perhaps thanks to the deterrence caused by fines. During their three day stay at Macerata, Green Train technicians found all measurements within permissible limits—with the exception of hydrocarbons.

Teramo. Once again, hydrocarbons represent the principal form of air pollution at Teramo. On the average, they exceeded by more than six times the limits set forth in the 1983 law, with peaks of ten times during evening traffic hours. In addition to releasing hydrocarbons in the air, automobiles were also blamed for the noise generated.

The microphones placed by the Green Train technicians in three different zones of the city, everywhere registered a much higher noise level than the limits fixed by the prime minister's recent decree. The noisiest area is Via Cona, in the outskirts. But noise level in the historical center (Piazza Martiri) is also very high, even higher than the permissible level in industrial areas. The only level approaching an acceptable threshold was measured at night in the neighborhood of the public hospital. But even here the limits are largely exceeded during the day; once again, because of the automobiles: particularly the very ones going toward the hospital.

SWITZERLAND

Forest Conservation Law's Impact Examined

91WN0355A Geneva JOURNAL DE GENEVE in French 7 Mar 91 p 13

[Article by Jose Bessard: "National Council: Way Paved for Forest Law"]

[Text] Bern—The new Forest Law is not designed to fight pollution, but to manage our forests ecologically and economically.

The way to the new Forest Law has been paved. With the threat of a referendum mood, it was nonetheless not easy to achieve this. The connection with land development (Article 12) unleashed thunderbolts from the Left and from ecologists. "They're going to sell off our forests!" they exclaimed. However, Flavio Cotti provided them with guarantees and the Green offensive failed. As for the surprising clause banning picnics in the forest of Article 14, it was dropped. The deputies are sticking to the version chosen by the Council of States. In the plenary vote the bill passed by 66 votes to one and numerous abstentions. It goes on to the lower chamber.

First of all, a few facts that are essential to an understanding of what is at issue in the debate. The present density of Switzerland's forests is very high. It adds up to 330 m^3 per hectare as against, for example, 212 m^3 in Austria, 152 m^3 in Germany, or 112 m^3 in France. This is not due to chance. In the 19th century Parliament was induced to adopt various measures to protect this precious heritage. Actually, overlogged during the first half of that century, our forests were no longer able to perform their protective function and this resulted in several catastrophes, usually caused by floods.

In 1874 a new article of the Constitution granted the Confederation the right to exercise high-level surveillance over the policing of the forests in the mountainous regions. Then the first forest law was passed in 1876 and expanded in 1902. And since 1902, many more laws have been passed to regulate living space. The purpose of the new Forest Law submitted to Parliament today is to formally coordinate these many provisions. It is not designed to combat the damage due to pollution of the atmosphere. In practice, it will make it possible to manage our forests ecologically and economically.

Three Functions

Passed in June 1989 by the Council of States, this new law has brought on a technical debate par excellence in the National Council. However, the chairman of the committee, Bernese Radical Marc-Andre Houmard, objectively summed up what is at issue in the bill: "It's a question of reconciling as effectively as possible interests relating to the three functions of our forests, to wit: their protective function, their economic function, and their social function."

The protective function: "In a mountainous country like Switzerland, it plays a preponderant role. It's a matter of protecting man, dwellings, means of communication, and other installations from the influences of civilization and the forces of nature," Marc-Andre Houmard pointed out.

The economic function: "Of all the biological matter produced by the forest, 4.5 million m^3, or slightly more than half the growth, are annually harvested commercially in the form of wood. The gross revenue from these operations represents a sum of about 450 million francs for all of Switzerland. Thirty years ago these sums left forest owners with a sizable net income. Today this is no longer the case since all of the revenue is reinvested in the forests."

The social function: "Increasingly more removed from nature, our way of life and working habits endow the social function, specifically the recreational aspect of the forests and their use as an area to relax in, with increasingly greater importance."

"Since the objective of the new law is to ensure care that is adequate and conforms to nature's needs, what is at

issue is finding a solution that is satisfactory to the forest owner as well as its beneficiary," Marc-Andre Houmard noted.

The Federal Council bill got through the Council of States without giving rise to any particular objections. In the National Council the issue was far more contested. The deputies took three-quarters of an hour just to agree on the title. Federal Department of the Interior (DFI) Chief Flavio Cotti and a minority led by Zurich ecologist Hans Meier did not want the word, exploitation, to appear in the title, arguing that forest conservation had to be understood as a whole, of which exploitation is only a part.

They were voted down by 74 to 53. And the title of the new Forest Law will be: "Federal Law Governing the Conservation of Forests, Their Exploitation, and Protection Against Natural Catastrophes." This skirmish is revealing with regard to the feelings that divided the plenum. The generally followed majority did not want the notion of exploitation to be deleted. On the contrary, the law ought to permit judicious exploitation (Jung proposal, accepted by a vote of 69 to 53).

Trojan Horse

Article 12, which provides for inclusion of the forests in management and appropriation plans, unleashed a barrage on the Left and among the Greens. "It's a Trojan horse in the forest!" exclaimed Saint Gall Christian Democrat Eugen David, who sees in this provision the possibility of circumventing the law and exposing areas to clearcutting that should be protected.

Geneva Socialist Rene Longet severely criticized "the perverse aspect of this provision, which divides the procedure into two phases" (development plan and authorization to clearcut). "With it the weighing of interests is burdened with debt. We go from a logic of protection to a logic of gradual encroachment. We must not open that door," he explained.

"We cannot accept a situation in which the forest law and the land development law are not coordinated," Flavio Cotti replied, furthermore offering various guarantees for the smooth application of the procedure. This was followed by a roll-call vote of 85 to 77.

To the Rescue of the Boy Scouts

Another apple of discord: a touchy committee proposal aimed at subjecting demonstrations in the forest to authorization when considerable damage is to be expected. The Vaudois Liberal deputy tore it to pieces by underlining the highly unrealistic side of the proposal. "In practice, this would affect every group, every Boy Scout troop," he exclaimed.

The Socialists joined him in has analysis. And this "antipicnic" clause was thrown out by a vote of 116 to 11. The proposal to delete it, pure and simple, was, however, turned down by a vote of 79 to 44. The National Council adhered to the unequivocal Council of States version, which "subjects the organization of large demonstrations in the forest to authorization."

The bill only got through the plenary vote by a vote of 66 to one and many abstentions (particularly Socialists). A referendum nevertheless does not seem very likely since the new law after all offers the nature-loving groups several advantages.

UNITED KINGDOM

Officials Report on Noise Pollution Problems

91WN0360A London THE DAILY TELEGRAPH in English 6 Mar 91 p 4

[Article by Virginia Matthews, Consumer Correspondent]

[Text] complaints about rowdy parties, backfiring cars and noisy neighbors have more than doubled in the past five years, making noise pollution one of the fastest-growing problems for local authorities, according to a report published today by the Institution of Environmental Health Officers.

It claims that "neighborhood noise" has become a chief cause of stress among people living in urban areas, but finds that most of the alleged offenses occur after office hours or at weekends.

Noisy house improvements, rowing neighbors and drunks are among the most common problems, but they tend to cause a nuisance when local authority noise patrols are off duty.

The report, published by the Institution of Environmental Health Officers, says: "People have never been so aware of their right to make a noise in their own property, nor so aware of their right to a peaceful life. This causes both sides in a domestic noise dispute to lock horns, making it difficult to determine just who is causing the biggest nuisance."

The report finds that more than 93,000 complaints about excessive noise were received by councils in England and Wales in the year to 1988, the last year for which figures are available. This represents a 100 percent increase on figures for the year 1982/83. But convictions for noise nuisance, at 322 in 1987/88, remain low.

Mr Nigel Haverson, assistant chief environmental health officer at Horsham district council and author of the report, said: "Horsham sounds a quiet place, but it has its fair share of barking dogs, DIY freaks and noisy teenagers.

"We could have a 24-hour noise police force, but judging by the experience of colleagues in other districts, we wouldn't manage to hear a thing."

The Environmental Protection Act requires councils to "take every reasonable step" to investigate noise complaints, even where they do not, at first sight, appear to be justified.

Nuclear Waste Adviser Scores BNF Policy

91WN0358A London THE DAILY TELEGRAPH in English 11 Mar 91 p 4

[Article by Roger Highfield, Science Editor]

[Text] The failure of British Nuclear Fuels [BFN] to have a full safety assessment of a L2.7 billion national nuclear waste dump ready in time for a public inquiry has been attacked by the Government's most senior adviser on the industry.

The BNF argument that safety at the site is a matter for experts rather for the public has been branded as unsatisfactory by Prof John Knill, head of the Radioactive Waste Management Advisory Committee.

Government nuclear waste advisers wanted a public discussion at the inquiry of the technical case for the safety of the repository, the location of which is expected to be announced later this year by the nuclear waste company Nirex.

The choice for the site of a nuclear waste store between 600 and 1,000 meters underground, rests between Sellafield in Cumbria and Dounreay in Scotland.

A public inquiry is scheduled for 1993, with disposal of intermediate level radioactive waste proposed more than 10 years later.

But by the time of the inquiry "we won't have the full safety case," admitted Mr. Christopher Harding, chairman of BNF, one of the shareholders of Nirex.

"There is a huge amount of work involved," said Mr. Harding. "We believe it is desperately important to get on. This may be seen by the public as the industry trying to pressurize it through," he said. "That would worry me."

Mr. Harding said it was a question of who was in the best position to judge the safety case: the inspector at the inquiry or a body with a technical background such as the Nuclear Installations Inspectorate. "It is not really the public inquiry that should make that judgement but the regulators.

"At the end of the day it is going to be the regulators that issue the licence to operate and therefore, technically, it is the regulators' responsibility," said Mr. Harding.

Prof. Knill said it would be unsatisfactory if the final safety case made for the repository were assessed "behind closed doors".

The safety issue has not been tested in an open forum before. His committee called for the public inquiry to be carried out in stages so that it could address the full safety case.

"The matters to be addressed have never been addressed before. They do need some sort of testing in a public place," said Prof. Knill. Mr Harding said in response: "I would question his arguments."

Prof. Knill said the committee was also concerned at the lack of geological data on the sites, which would be used in computer models to predict long-term safety.

The public inquiry will have to assess a safety case which is based on a small sample of bore holes.

"The repository is going to cover a large area and the drilling should reflect that," said Prof. Knill.

Mr. Harding said: "More information is becoming available as we drill more boreholes." However, he added that "Sellafield probably is not the best geology" for a national waste dump but, if it meets Government criteria, "that is all that matters".