JPRS-TEN-90-017
6 DECEMBER 1990

FOREIGN BROADCAST INFORMATION SERVICE

JPRS Report

Environmental Issues

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Second World Climate Conference Opens in Geneva

91WN0066A Paris LE MONDE in French
31 Oct 90 p 11

[Article by Yvonne Rebeyrol: "Warming of the Planet Is Inevitable"]

[Text] Geneva—The Second World Climate Conference opened in Geneva on 29 October. Meetings all this week will be devoted to scientific papers. On 6 and 7 November, they will become political with participation by heads of government, including Michel Rocard, and ministers from some 70 countries. Eleven years after the First World Climate Conference, it is certain that the warming phenomenon will affect the entire planet, but when and by how many degrees?

The Second World Climate Conference is very different from the first, held in Geneva from 12 to 16 February 1979, not by virtue of the number of scientists (500 this year; 400 in 1979) or the countries represented (about 100 each time). Rather, the difference has to do with the subjects taken up and the participation of ministers. In 1979, the vast majority of all reports were devoted to the atmosphere. A few naturally dealt with the ocean and a single one with human factors. It is true that in 1990, studies of the atmosphere are still important, but from the very opening session this time, emphasis has been placed on the great unknown, the ocean, and the agricultural, industrial, economic, social, and therefore human impact which any change in the planet's climates could have over the next 30, 50, or 100 years.

Dr. James Dooge, hydrologist, professor at the University College of Dublin's Water Resource Research Center, former president of the Royal Irish Academy[1], and also former Irish minister of foreign affairs, is in a good position to speak of the differences between the two world conferences on climate. He served on the organizational committee for the first and heads that committee for the second.

In 1979, no one knew precisely how to study the impact of a change in climate on human activities. Over the next 10 years, a methodology was developed and, Dooge says, the next decade will consequently be devoted to that impact and to studies indispensable to a better knowledge of parameters involved in the climate changes which, according to all indicators, will occur over the next century.

Experts are unanimous. On the one hand, the gas content of the atmosphere favoring the greenhouse effect[2] (carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, to cite but the main ones) is steadily increasing with human, industrial, and agricultural activities.

Mystery of Ocean

In addition, analysis of an icicle from the Antarctic shows that over the last 14,000 years, the ice ages have coincided perfectly with a decrease in carbonic and methane gas contents, while warming periods have precisely followed an increase in such gases. However, one cannot say whether such coolings and warmings were the cause or result of such variations.

In medium-range terms, one must therefore expect a significant and rapid general warming of our planet. However, there is still unanimous uncertainty about the process and consequences of the coming warming, no tangible sign of which has yet been identified. The ocean, whose reaction time is on the order of several centuries, is still very poorly understood, although it surely plays an essential role in the behavior of the atmosphere[3] and the carbon cycle[4].

Nor can one predict with any precision either a global warming in the next century (from one to five degrees Centigrade, according to estimates), much less regional warmings, which are probably more marked in high latitudes, or regional climate changes, or the impact of all these changes on temperature and precipitation and therefore, natural vegetation and agriculture or the elevation of sea level (from one to several decimeters) due, first of all, to thermic expansion.[5]

Serious scientists may have some doubts about the speed and extent of the change in climate, but not its inevitability. Consequently, all participants in the Geneva conference agree on one overriding need: There is no time to wait for certainties. Starting now, governments must decide to reduce gas emissions that result in a greenhouse effect. Without compulsory measures on a world scale—whence the idea of a general convention to regulate numerous activities, already under discussion and which, it is hoped, could be held in 1992 in Brazil—mankind is hellbent for disaster.

In 1979, the First World Climate Conference decided to launch the World Climate Research Program mainly concerning atmospheric physics. In 1986, the International Geosphere-Biosphere Program added biology and chemistry. Since 1988, finally, the Group of Intergovernmental Experts for Research on Climate Change is responsible for drawing up the "balance sheet" so as to inform decisionmakers and enable them to come to a general agreement aimed at protecting the environment.

Reports of the group of experts, on which some 1,500 scientists from all over the world worked, are now being discussed by the Second World Climate Conference. They will be presented next week to the ministers, who alone will be empowered to determine the orientation of the very costly research programs and to negotiate and decide on measures needed, not to prevent any climate change, already impossible, but to moderate its scope and, finally, safeguard life on our planet to the extent possible. This without forgetting the citizens, who must be honestly informed so that they may come to change their habits.

Footnotes

1. Ireland has become a republic, but the 200-year-old name of the Royal Irish Academy has never been changed.

2. Some natural gases (carbon dioxide, methane, nitrous oxide) and artificial gases (chlorofluorocarbons), present in the atmosphere in a few hundred parts per million, possess the property of sending back to Earth the infrared rays emitted by the sun heated because of having absorbed part of the sun's radiation, just as the glass or polyethylene walls of a greenhouse do not let infrared rays escape. Trapped, those rays heat the low atmosphere or inside of the greenhouse.

3. It is the ocean, covering 71 percent of the globe's surface, which absorbs most of the solar energy and transmits it to the atmosphere thanks to very complex exchanges.

4. With all the carbon dioxide emitted by industries in the past 100 years, the atmosphere's content of that gas should have increased twice as much as it has. It is therefore thought that the missing carbon dioxide has been absorbed by the ocean and the continental biosphere. But how and why?

5. A heated body expands. If the top 200 meters of the world's oceans are heated 1 degree C, sea level will rise 20 cm.

World Climate Conference Discusses Global Warming

91WN0114B Paris LE MONDE in French 8 Nov 90 p 10

[Article by special correspondent Yvonne Rebeyrol: "Political Leaders Seek Common Position To Combat Greenhouse Effect"—first paragraph is LE MONDE introduction]

[Text] Several government leaders, among them Mrs. Margaret Thatcher and Mr. Michel Rocard, together with the environmental ministers of 70 states relieved climatology specialists on 6 and 7 November at the Geneva conference, in an attempt to devise a global strategy against warming of the planet.

"Renewable energy sources (hydraulic, solar, wind- and tide-driven) will remain, at least for some years, wishful thinking. Saving energy at the point of production, on the other hand, is very promising. Especially as long as nuclear plants, which supply 70 percent of France's electricity, are the only ones capable of massive production of energy. And they don't emit carbon gas." Mr. Michel Rocard showed no lack of courage nor candor in his words to the press. The prime minister, who came to Geneva on 6 November for the first day of the ministerial meeting closing the second World Climate Conference, did not deny the problem of nuclear waste. Instead, he pointed out that "all forms of energy have their negative side." He chided the Swiss and German Greens, who forced their respective countries to abandon nuclear energy, but do not protest against the importation of French electricity—"a good source of foreign currency for us"—most of which is produced by the despised plants. He also pointed out that the French Greens protested against nuclear power a few years ago in the north, unaware that coal killed some 1,500 people in over a century, while there has not been a single victim of nuclear power in four decades.

Europe and Japan

King Husayn of Jordan, who participated in the official opening ceremony, spoke of the unprecedented ecological catastrophe which, according to him, would befall Kuwait, Iraq, Bahrain, Qatar, the United Arab Emirates and a large portion of Saudi Arabia, Jordan, Syria, and Iran, not to mention Gulf waters, if Kuwait's stock of oil reserves (about 50 billion barrels) were set afire.

As for Margaret Thatcher, Great Britain's prime minister, she described the European Community's recent decision to stabilize carbon gas emissions at current levels over the next 10 years as "very good." Like the unanimous scientists, she affirmed that measures against the greenhouse effect must be global, as the threat of warming is.

Europe and Japan are thus in the forefront of the fight against the greenhouse effect. The environmental ministers of the European Free Trade Association, Liechtenstein, and the Twelve agreed on the matter 5 November in Geneva.

There are now 18 European countries who have committed themselves to combating the greenhouse effect together, by stabilizing their carbon gas emissions. They are inviting other industrialized countries to do the same, and hope that the reduction of greenhouse-effect gas emissions will be studied beginning in 2005 or 2010.

On 6 and 7 November, the environmental ministers leading the delegations offered the opinions of their respective countries. On the whole, they agree on the urgency of the new world-wide problem posed by the greenhouse effect and rapid planetary warming, and on the fact that industrialized countries, responsible for three-quarters of carbon gas emissions, must point the way. There is also universal acceptance that poor countries, which will suffer most from climatic upheavals, should be aided to develop without adding to the greenhouse effect.

For now, the solutions proposed by industrialized countries having already expressed themselves on the matter involve taxing users of fossil-burning fuels. That might, among other things, force a rethinking of the transportation system. Mr. Brice Lalonde, environmental minister, insisted on two points: One, that the fight against the greenhouse effect must henceforth be the guiding factor in environmental policies, with, among other things, dissuasive tax measures; two, the fight could start by reducing the wide-ranging differences between carbon gas emissions among the planet's nation states. Such a

step would reduce emissions throughout the world in 20 years, to about two metric tons of carbon per inhabitant per year.

This goal would not overly stifle the development of poor countries, which pour out an average of 0.4 metric tons of carbon per inhabitant each year; especially if techniques boosting the efficiency of energy sources were devised between now and then. It would also not overly inconvenience the Twelve and Japan, which emit between 0.9 metric tons of carbon (Portugal) and 3.19 metric tons of carbon (Federal Germany). But such measures would be much more constraining for Luxemburg, (6.83 tons of carbon per inhabitant annually), the United States (5.2 metric tons of carbon), and East Europe (3.2 tons of carbon). It should be noted that the Europe of Twelve's "slow students" (Germany, Great Britain, Denmark, and Holland) have already declared their willingness to stabilize or reduce their carbon gas emissions between 2000 and 2005.

That leaves the problem of the United States (5.2 metric tons of carbon), the USSR (3.5 tons of carbon), and even China (0.5 tons of carbon, but 1.1 billion inhabitants), which are unenthusiastic, to say the least, about taking the necessary steps to reduce carbon gases at home.

All the scientists who met in Geneva from 29 October to 3 November drafted a statement in which they recognized the urgency of the greenhouse-effect problem, demanded increased efforts in research programs and international cooperation, and explained the specific problems of developing countries.

The question is whether the politicians who gathered in Geneva 6 and 7 November will manage to put together an equally unanimous agreement against the greenhouse effect. Even a very general agreement would be desirable: It would buy time to negotiate the provisions of the future convention on the environment and development, which may be ready for the conference planned for 1992 in Rio de Janeiro.

EC Announces Carbon Dioxide Emission Level Goals at Conference

91WN0114A Paris LE MONDE in French 1 Nov 90 p 13

[Article by EC correspondent in Luxembourg Philippe Lemaitre: "The Twelve Decide To Reduce Carbon Gas Emissions"—first paragraph is LE MONDE introduction]

[Text] At the Second World Climate Conference just opened in Geneva, the European Economic Community will announce its intention to implement a program limiting carbon gas emissions, chief culprits of the greenhouse effect and resultant planetary warming.

The Twelve's environmental and energy ministers, who met in a joint session on Monday, 29 October in Luxembourg, agreed to stabilize EC carbon gas emissions at 1990 levels, that is, at about 2.3 metric tons of carbon equivalent per year per inhabitant, by the year 2000.

It is a political agreement which, now that Japan has announced it intention to meet similar goals, should allow the Community to maintain its leading role in the international debate underway. But it is far from solving all problems. "It marks the beginning of an intense phase of domestic and foreign negotiations," commented Mr. Brice Lalonde, French minister of the environment.

Agreement is yet to be reached on the extent of the effort to be made by each member state, since levels of industrial development and pollution are different, and must be taken into account. Without giving a blank check to southern EC countries (the Belgian minister noted that CO^2 emissions per inhabitant in Greece were nearly at French levels!), they and Ireland will be asked to do less than the EC's northern industrialized countries. A special difficulty arose with the United Kingdom which, while agreeing to subscribe to the Community objective of stabilization at the 1990 level by the year 2000, still has no intention of modifying its national plan to stabilize emissions at that same 1990 level before the year 2500.

Keeping to this paradoxical position is thought to mean that the other "rich" member states should shoulder a part of the financial effort that would normally fall to the United Kingdom. France, for its part, has decided to immediately stabilize its CO^2 emissions at levels lower than the Community average designated for the year 2000.

In December, the European Commission will submit to the Twelve proposals on how the member states can reduce their CO^2 emissions in a coordinated and consistent fashion. Mr. Carlo Ripa di Meana, the environmental policy commissioner, mentioned energy taxes on coal- and oil-fueled power stations, but not on those run on gas or on nuclear power plants.

World Steel Makers To Discuss Environmental Problems at April Meeting

OW2311080290 Tokyo KYODO in English 0739 GMT 23 Nov 90

[Text] Tokyo, Nov. 23 KYODO—Some 500 representatives of the world's steel manufacturers will gather in Dusseldorf, Germany, next April to discuss ways of solving various global environmental problems, according to industry sources here.

The global forum, scheduled for next April 15-19, will be sponsored by the International Iron and Steel Institute (IISI) and two German steel industry organizations, with the cooperation of the United Nations Environment Program (UNEP).

The Brussels-based IISI has previously held symposiums on environmental issues twice, in Tokyo in 1974 and in Chicago in 1979.

The forthcoming forum will be joined by the Soviet Union, China, and other socialist countries for the first time, the sources said.

Representatives of the steel industry, a major energy consumer, will divide into four discussion groups for debate on various issues, including the global warming stemming mainly from carbon dioxide emissions, air and water pollution, noise, acid rain, and energy conservation, they said.

Six major Japanese steel manufacturers, including Nippon Steel Corp. and NKK Corp., are slated to deliver nine reports at the forum, or 20 percent of all scheduled reports, according to officials of the Japan Iron and Steel Federation.

Japan is known for its advanced technologies and measures taken by the steel industry against pollution and other environmental problems, the sources said.

The officials said they hope that the Dusseldorf forum will serve as a good opportunity for introducing Japanese antipollution technologies as well as securing international technological cooperation in solving global environmental problems.

Brazil To Support U.S. Proposal on Antarctic

PY1911124490 Brasilia Radio Nacional da Amazonia Network in Portuguese 0900 GMT 17 Nov 90

[Text] Brazil will support the U.S. proposal for a temporary prohibition on mineral exploitation in the Antarctic. This proposal was submitted to Itamaraty by Curtis Bohlen, U.S. assistant secretary for ocean and international environmental and scientific affairs.

The proposal will also be presented at the international conference on the Antarctic Treaty, which will be held in Chile with the participation of 38 countries. Measures to protect the region's ecosystems will be discussed.

Chilean Navy Officers To Control Antarctic Treaty Compliance

PY3011233190 Santiago LA TERCERA DE LA HORA in Spanish 20 Nov 90 p 7

[By Alvaro Inostroza from Valparaiso]

[Excerpt] The commanders and navigation officers of the four ships that make up the Navy group that will conduct tasks in the Antarctic, and the commodore in charge of the group will supervise, for the first time, the compliance with Article 7 of the Antarctic Treaty. This article deals with the defense of sea resources in the frozen continent.

Commodore Jorge Vergara granted an interview to this newspaper on board the freighter Aquiles, which heads the expedition. Vergara reported that, in addition to the nine assigned officers [not further specified], his navigation officer will also act as a supervisor.

The high-ranking officer added: "The mission of these 10 people has been confirmed by the Chilean Foreign Ministry and the governments of all the Antarctic Treaty signatory countries have been informed. This means that our supervision is more important and more authoritative, mainly because an agreement on the defense of live marine resources in the Antarctic has been recently approved."

Vergara pointed out that the group will conduct tasks in the Antarctic during the 1990-91 period. The group comprises the following vessels: the Aquiles, with a crew of 95; the Piloto Pardo, with a crew of 70; the Yelcho, with a crew of 45; and the high-seas tugboat Galvarino, with a crew of 35. Additionally, the Aquiles will take two Navy UH-57 helicopters on board. [passage omitted]

Normal Progress Reported on U.S. Johnston Atoll CW Destruction

91WC0026B Moscow IZVESTIYA in Russian 25 Nov 90 Union Edition p 5

[Report by V. Mikheyev: "The Operation Was Successful"]

[Text] Sydney—*They have begun to destroy American chemical weapons shipped from the FRG.*

According to a report from the Australian information agency AAP, two transport ships from Germany carrying 100,000 tons of chemical munitions have completed their many months-long trip and delivered their cargo to Johnston Atoll in the Pacific Ocean.

The ships did not have to withstand any hurricanes, which are frequent at these latitudes, did not lose any of their cargo, and there were no leaks; in a word, American Army Colonel J. Bushong had every reason to say that "the operation went exceptionally smoothly" and precisely on schedule. Until 1994 all the chemical potential now located on Johnston Atoll—and this amounts to 300,000 charges—left over from World War II and intended for "smoking out" the Japanese from the Pacific Ocean islands they had taken, which never came to pass, was to be destroyed in four specially constructed furnaces here.

The pipes of this unique crematorium are already smoking. True, with almost regular interruptions caused by forced shutdowns. Inspections and repeat inspections of the technical reliability of the equipment follow one after another. Since the complex was started up this summer, it has been shut down six times. The cause is the supersensitive gauges that go into operation. True, as it turns out each time, all the alarms are false, but still they have disrupted all the plans. As of 21 November, of the 10,000 units of ammunition earmarked for destruction during the first four months, less than one-third—3,300—have been eliminated. The "net time" the complex has operated is less than three weeks.

This pressing issue recently brought a representative group of journalists from a number of countries to Johnston Atoll, a total of more than 70 people who conducted a somewhat independent investigation.

The emissaries from the largest publications and television companies looked over the reinforced concrete bunkers filled from floor to ceiling with weapons containing gases, the complicated system for ventilation and monitoring possible leaks, and the furnaces themselves. In brief, the entire gigantic plant, whose construction cost $280 million. Officials explained to them that their main concern was not to allow the slightest amount of the harmful wastes to enter the atmosphere.

At a meeting with the heads of state and governments of the Pacific Ocean region, U.S. President G. Bush announced that the activity of the crematorium on Johnston Atoll "will not lead to harm to the environment."

South Pacific Commission Condemns French Nuclear Test

PY1711193290 Madrid EFE in Spanish
0317 GMT 16 Nov 90

[Text] Santiago, 16 Nov (EFE)—The Permanent South Pacific Commission (CPPS) today sent a note of protest to the French Government to strongly condemn a new nuclear test in the Pacific Ocean, the fifth of the year.

The CPPS Secretariat General, which is made up of Colombia, Ecuador, Peru, and Chile, regretted the most recent nuclear detonation by the French in Fangatau, near the Mururoa Atoll.

The secretariat's note reaffirms "the CPPS' categorical opposition to nuclear explosions in this ocean basin, as expressed each time the organization hears about one of these tests."

"The Secretariat General again warns about the serious risk that nuclear explosions pose to ocean life and its resources, reaffirms its opposition to and strong protest against the continuation of these tests, and again demands their immediate and final cessation," the note concluded.

South Pacific Commission Protests Latest French Nuclear Test

PY2411162090 Madrid EFE in Spanish
0152 GMT 24 Nov 90

[Text] Santiago de Chile, 23 Nov (EFE)—The Permanent South Pacific Commission (CPPS), which is made up of Colombia, Chile, Ecuador, and Peru, today protested a new French nuclear test in the Muroroa Atoll. This is the second nuclear explosion this month and the sixth of the year.

The communique issued by the CPPS states: "It is disconcerting to see that these nuclear explosions are still taking place just three days after the signing of the memorable Paris Treaty to substantially reduce armed forces in Europe and despite the fact that the so-called 'cold war' has ended."

The communique, which is signed by CPPS Secretary General Teodoro Bustamante, emphasizes that this commission "urgently demands the immediate and definitive end to these worrisome nuclear tests in Oceania in keeping with the intensified effort to strengthen peace and general disarmament."

Latin America 'Favorite' Dump for U.S. Toxic Waste

PY1511133890 Madrid EFE in Spanish
2100 GMT 11 Nov 90

[Text] Santiago de Chile, 11 Nov (EFE)—According to an investigation on the transport of dangerous waste conducted by the South American Peace Committee, Latin America has become the favorite dump for toxic substances from the United States.

EFE has learned that a report to be released by the committee next week shows that, of all the dangerous waste sent to Latin America, 78.5 percent comes from the United States, 12.8 percent from Europe, and the rest from Australia.

According to the report, Central America and the Caribbean are the regions which have received more proposals on these negotiations which are generally carried out in secret "with the promise of benefits for receiving the waste."

Vicente Sanchez, Claudia Sepulveda and Rodrigo Cerda have investigated 70 cases of dangerous industrial waste exports to Latin American in the past few years.

Their investigations reveal that the shipments include nuclear waste, chemicals, paints, lubricants, mud from sewers, incinerated waste, toxic liquids, and minerals.

According to the investigation, industrialized countries produce around 375 million tons of dangerous waste per year, of which the United States generates some 275 million.

The experts said: "Many U.S. factories and cities have historically sent their waste to Mexico, Central America, and Canada." They describe this business as "a threat to the ecological security of the continent."

The growing ecological awareness in the highly industrialized countries and tighter legislation have made the treatment of waste in those countries more difficult and expensive.

The publication adds that the poor and less developed countries, and the more permissive countries have received toxic waste, around which a system of world companies dedicated to the trade and traffic of toxic waste has been created.

The publication also says that in 1980 there were 12 companies involved in this business in the United States and that the number grew to 522 by 1988.

The most affected countries were those of the third world, especially Africa and the Caribbean, and some European countries, especially in the Eastern bloc.

The publication warns that "the lack of resources of the developing countries, their institutional weakness, the lack of appropriate control organizations, and the corruption of officials and the ignorance of the population are allowing this business to flourish and to threaten the region."

Brazilian Minister Slams U.S. Press Advertisements for Amazon Land

PY2611173290 Brasilia Radio Nacional da Amazonia Network in Portuguese 0900 GMT 26 Nov 90

[Text] The government has warned: This is a scam. This warning refers to the advertisements published by a U.S. magazine in which Amazon Region land is offered to foreign purchasers.

Agriculture Minister Antonio Cabrera told reporter Lourivaldo Macedo that the vendors are seeking to become rich illegally.

[Begin Cabrera recording] I attribute this advertisement to dishonest people who want to make money easily, to people who resort to scams, who try to fool others and sell illusions. I know the ecological issue is captivating, enticing, and charming, and that based on these elements some con men in the United States are using the charms of ecology to make money.

I can tell you that President Collor has drafted, for the first time in Brazil, a very serious policy to protect the Amazon Region, which is a priority for his administration. The policy establishes that foreigners cannot purchase land in Brazil without the Agriculture Ministry's approval. This is why this advertisement for the sale of Amazon Region land, which was published by a U.S. magazine, is a scam. [end recording]

Minister Cabrera said he is reporting to Itamaraty all the data on the issue, so that the Brazilian Embassy in Washington can contact the company that placed the advertisement.

PRC Delegation Signs Oil Spill Document After London Conference

OW0112051590 Beijing XINHUA in English 0245 GMT 1 Dec 90

[Text] London, November 30 (XINHUA)—The International Maritime Organisation (IMO) today closed a two-week conference at its headquarters in London, adopting a new treaty to combat oil spills.

The meeting was convened at the request of its member countries following the U.S. registered Exxon Valdez tanker disaster of Alaska in March last year.

More than 370 delegates from 93 countries, including China, attended the conference.

At the meeting, the Chinese delegation put forth its proposal on measures on safety at sea, which was absorbed in the final document and the treaty.

China especially urged industrialized countries to help developing countries enhance their abilities to combat and prevent oil pollution.

The treaty extends IMO regulations to fight oil pollution by creating emergency plans on ships and offshore installations, including improved port and oil handling facilities. It also sets a framework for cooperation among member countries in dealing with oil spills.

China and other 80 nations signed the final document passed at the end of the session and 15 countries accepted and signed the treaty, which will come into force in 12 months.

PRC Researchers Study Acid Rain Sources, Greenhouse Effect

OW1511185590 Beijing XINHUA in English 0858 GMT 15 Nov 90

[Text] Beijing, November 15 (XINHUA)—Even before human history, the Yellow River was muddy, and soil erosion on the loess plateau was as bad as it has ever been, according to Chinese environmental geologists.

Study of the silt volume records of China's Yellow River, the world's muddiest, shows that a periodicity rules its silt volume peak in tandem with the sunspot activity cycle.

"Human interference with the river has been exaggerated," commented Professor Hong Yetang, director of the Laboratory of Environmental Geochemistry of the Chinese Academy of Sciences.

This is only one of the many interesting discoveries Chinese scientists have made in researching into the "Global Changes of the Past", an international project aimed at predicting the planet's future environmental changes through a complete and systematic knowledge of her past.

Analysis of sulphur sources of acid rain in the Guiyang area (in Guizhou Province, southwest China; one of the places most subject to acid rain in the country) notices a seasonal change in the sulphur's isotopic composition. Further studies have proved that coal fires emit the most sulphur dioxide, and this forms acid rain in winter and spring; while in summer and autumn, the amount of volatile sulphide given off by natural lakes and rice fields is much greater than that released by coal fuels, and contributes most to the acid rain.

Moreover, scientists also find that many plants, such as soybean, corn and rice release nitrogen monoxide, an important "greenhouse gas", which accelerates the destruction of the ozone layer.

According to Professor Su Weihan of the Ecological Environment Center of the Chinese Academy of Sciences, these discoveries "may help rectify some oversimplifications about acid rain and other environmental changes."

Many environmental geologists think that some of the disastrous changes in the environment are not recent, but have a long geological history, although they may have been speeded up by human activities.

The scientists are now working on the interpretation of tree rings, ice cores, lake sediment, pollen, loess profile, volcanic ash and other geological and geochemical records, trying to find out something about the "Global Changes of the Past" or the consistent environmental changes.

Hong said, "this job is aimed at letting the past tell us about the future."

Austria Chancellor on Meeting With CSFR's Havel, Environmental Issues

AU2611112990 Vienna AZ in German 24 Nov 90 p 4

[Interview with Austrian Chancellor Franz Vranitzky by Margaretha Kopeinig; place and date not given—"The Environment Cannot Wait"]

[Excerpt] [Kopeinig] Mr. Chancellor, on the occasion of the CSCE summit in Paris you met with Vaclav Havel and discussed your project of a nuclear-power-plant-free central Europe. Did you make any offers to Havel?

[Vranitzky] The environmental situation in the CSFR is disastrous. Havel agrees with me on that; he is not a friend of nuclear energy. For this reason I asked our "Forum for Nuclear Questions" to deal with the environmental situation in the CSFR. Today one can draw up an intermediate balance sheet to the effect that the Czechs reacted positively to this. The final report will be available before the end of the year.

[Kopeinig] Which measures do you want to agree on then?

[Vranitzky] If actions are immediately necessary—and I assume that this will be the case—it will be necessary to take up all proposals and ideas of Austrian industry and the Austrian electricity supply companies in order to gradually build up the production of alternative energy in the CSFR. These are technical and industrial projects which are linked with high financing burdens and must be solved at an international level. For instance, a long-distance pipeline for natural gas from Norway to central Europe. Then it will be necessary to build district heating plants. I have not discussed this with Havel in detail, but we did discuss the basics. He also invited me to come to Prague.

[Kopeinig] When?

[Vranitzky] The trip will certainly take place next year.

[Kopeinig] In your view, is it sufficient for Austria to cooperate concerning environmental issues only with the neighboring countries or is it necessary to act globally in view of the dramatic ecological situation, in particular in the Third World countries?

[Vranitzky] It is not enough to talk about the ozone hole, the greenhouse effect, etc. Why are the Third World countries or the people who live there [destroying?] their natural environment by cutting down the rain forests? They are not destroying it arbitrarily but out of poverty. We in the industrial countries have no right to wag our fingers at them and tell them that they must not do this. Through economic aid we must create the preconditions so that they do not empty their piggy-bank, which is the rain forest, as a last way out. I have included this idea in the environmental charter, in which the United Nations is very interested now. [passage omitted]

INTER-AFRICAN

Africa Urged To Halt Deforestation

91WN0083A Nairobi SUNDAY TIMES (FOCUS SECTION) in English 14 Oct 90 p 1

[Article by Michael Otieno]

[Text] Close to two billion people have inadequate drinking water while three billion lack proper sanitation. Water borne diseases like bilharzia, kill an average of 25,000 people a day in the Third World. Four out of the five common diseases are caused by dirty water or lack of sanitation. An average resident in the United States of America consumes about 70 times more water a day than an average Ghanaian. And water borne diseases spawn by human wastes cause 80 percent of all child deaths in the Third World.

These are chilling facts about only one aspect of the world environment but which give us an indication of the dire strait the continent, and indeed the whole world,is facing. For resource-poor Third World nations, the situation is worrying indeed.

According to a United Nations Environment Programme (UNEP) situation report on the state of environmental problems in Africa, water, desertification and soil degradation are top on the list. One would wonder then why the world media shoves down people's throats, the threats posed by global climate changes and ozone layer depletion as the most serious environmental hazards.

The most recently identified environmental hazards are not peculiar to Africa and it would be a big blunder not to recognise them and channel the necessary resources towards curbing them.

Desertification, a very serious threat to the survival of man and other organisms in the natural biosphere, is hardly ever noticed until the plight of the affected people is brought out during severe droughts. "Only during severe droughts when human suffering becomes so visible do we see it (desertification) effects," says the UNEP report. The report further states that desertification is the root cause of major biological and economic sufferings which range from loss of gemetic deversity, hydrological disruptions, loss of production and subsequently erosion of the resource base.

Thirteen years ago, Nairobi was the venue of a United Nations conference on desertification which brought together world leading authorities on the subject. They came up with a plan of action to comb the scourge.

The executive director of UNEP, Dr. Mustapha K. Tolba, summarises the achievement of UNEP in this endeavour as "a few drops in the bucket, no more."

To curb desertification, the world would need an estimated US$4.5 billion (over 100 billion Kenya shillings) a year for a period of 20 years. The world is reported to be spending only about half that amount a year. The technical knowledge is there. But why is the progress slow?

Dr. Tolba states: "The public has not been convinced of the threat. There is no perception of threat..."

"Desertification is, in both origin and effect, very much a human problem," says UNEP. Its impact is shared by the whole world. The problem affects nearly 100 countries (1/3 of the world's land surface) and the future of about one out of every five people in the world. UNEP stresses that if the current trends of desertification continue, the figure would rise to a third of the world's population by the year 2000.

In 1977, UNCOD [United Nations Conference on Desertification] underlined the urgency of the problem as such: "The quest for greater productivity has intensified exploitation and has carried disturbance by man into more fragile and less productive lands. Overexploitation gives rise to degradation of vegetation, soil and water—the three elements which serve as the natural foundation of man's existence. Desertification is a process which feeds on itself and as it advances, rehabilitation costs too rise. Action to combat desertification is required urgently before the costs of rehabilitation rise beyond practical possibility or the opportunity to act is lost for ever."

Civil discord, strong political pressure with the resultant instability in many African countries has been blamed for the lack of or poor continuity in anti-desertification projects. This is particularly so when scarce resources are diverted to such unproductive endeavours as military buildups, wars and land being abandoned in the affected rural areas.

A major thrust for the UNCOD plan of action in combating desertification lies in popularising the problem, making available adequate resources and regarding desertification are a financial priority.

There is an estimated 1.4 billion cubic metres of water on earth, 97 percent is in the oceans. The remaining 3 percent, 77 percent is locked away in the polar ice caps and glaciers. This leaves a meagre 0.6 percent in fresh water lakes and rivers. As a natural resource, water is scarce and it's becoming more scarce.

It's hard to imagine what aspect of life does not require water. It's needed to irrigate crops and for industrial and domestic purposes among other uses. But the obvious shortages are due to poor natural distribution vis-a-vis the demand, poor management, and of late regrettably so, pollution.

Unequal distribution of water is a global problem. The Amazon receives 15 percent of the world's run-off rainfall which drain into the rivers and other such water masses. The Congo-Zaire basin supports only 10 percent of Africa's population but it receives 50 percent of the continent's water.

Agriculture is the prime user of fresh water and most of this is used for irrigation. But surprisingly, due to poor planning and management, over 80 percent of this water never reaches the crops. This often leads to wastage of large tracks of land as a result of water logging, and salination.

Water problems can be further compounded if the water sources are shared between countries. Forty percent of the world's population depend on water from a neighbouring country—a case of "one nation's waste be another's drinking water." Other projects like hydroelectric power generation and irrigation projects upstream would affect the quality, quantity and timeliness of another country's water supply. About 200 internationally shared rivers are and have been bones of contention between nations. As needs rise, so do the tensions grow.

To the Samburu of Kenya's north, water is a major preoccupation. "Once we can solve our water problems, we can begin to manage other pressing problems," a Samburu elder told UNEP officials.

Cooperation in international water management is of importance given that the quality and quantity of the available water sources are dwindling and the possibility of international conflict showing its ever ugly head. Dr. Tolba says UNEP seeks to promote "the concept and practice of thinking ahead and thinking together."

The Zambezi River which drains an estimated 1.3 million square kilometres from central Africa to the Indian Ocean covering eight countries (Botswana, Angola, Zimbabwe, Zambia, Tanzania, Namibia, Malawi and Mozambique) with a population of some 20 million people, holds good prospects of a successful "African water sharing goal." Five of the basin countries signed treaty on the use of the river three years ago.

The Zambezi plan of action involves the management and development of Africa's four largest river basins. According to the proposals, there will be 8 priority projects and 10 secondary ones to be implemented under the Southern Africa Development Coordination Conference (SADCC). The importance of the plan is not in its magnitude but it's being the first plan for a shared water source and is evidence of the continent's ability to handle its own environmental affairs if given the time.

In the backface of a rising population, Africa's food production a person has fallen by about 12 percent. In other regions, production has risen by between 6 and 49 percent. This makes malnutrition the most acute physical expression of the abject poverty in the continent.

Population pressure has destabilised traditionally stable agricultural systems. As the demand for food rises, more people are farming on steeper slopes, marginal arid and semi-arid lands without the appropriate methods and technology. The soils here are usually weak in structure and are thus susceptible to erosion.

In Africa, loss of top soil is worrying situation given the slow rate at which it's replenished. With no comprehensive report to go by, spot reports on the level of degradation paint a very dire picture indeed. It's reported that soil loss rates in Africa have increased twenty fold in the last 30 years with erosion rates of between 200-300 tonnes a hectare in a year in many places. The situation is aggravated by the rate of depletion of natural forests of about 3.7 million hectares of forests a year in the continent.

It's believed that deforestation is the most powerful catalyst speeding up soil erosion in the developing countries. Crops are failing, fuelwood is dwindling and the environmental crisis is deepening. The process is self-fuelling.

What do we do?

KENYA

Government Tackling Environmental Issues

91WN0084A Nairobi KENYA TIMES in English 10 Oct 90 pp 40-41

[Article by Cecilia Kamau]

[Text] Natural resources are the engine for development while development is dependent on the continued production of the natural resource base.

Kenya is a country of contrasts and diversity and is well reflected by the range of natural resources that are available in the country.

The paradox that emerges is that development is dependent on the very resources it threatens with extinction. Already the country has taken up management strategies that combine use with conservation, improvement in living standards so that the national wealth is not jeopardized.

Environmental management in the country is accorded the priority it deserves. The Ministry of Environment and Natural Resources secretariat established in 1974 to perform an advisory, coordinative and catalystic role in the protection and enhancement of the environment, for the improvement of the quality of life of the people of Kenya.

The secretariat has been tackling the problem of decertification, floods, drought, deforestation, soil erosion, pests, disease and pollution.

A national conservation strategy was started in 1985 with President Moi launching the campaign and making it very clear that every Kenyan had a role to play in safeguarding the environment.

President Moi has spearheaded soil conservation programmes and has in fact addressed international fora following his concern for environment.

The environment secretariat monitors the existing as well as proposed industries, with a view to assessing their impact on the environment.

The environmental education is a vital tool in the promotion of environmental awareness and knowledge throughout the country.

The secretariat has a fully-fledged division of education and information which is manned by professional teachers, graphic artists and professionals in other environmental fields.

The secretariat carries out environmental studies at the district level. The project on District Environmental Assessment was initiated in 1978 with the principal objective of finding ways of incorporating environmental consideration into the process of district planning and decision-making.

Environmental education will soon be incorporated into the curriculum of schools and it will be made compulsory. Moi University and Egerton University have been teaching environmental education, for some time.

A department of environmental was created recently at the Kenyatta University when President Moi directed the university to do so.

District environmental officers were appointed recently as every new project in the country requires an environmental impact assessment exercise.

Nairobi is the headquarters of the United Nations Environmental Programme (UNEP). With President Moi on the forefront, Kenya has played a key role in the fight against the destruction of the ozone layer, climatic change and the consequent global warming.

The country is a member of the Inter-Governmental Authority on Droughty and Development (IGADD) whose main objective is to control decertification within the Horn of Africa.

Kenya through the Ministry of Environment and Natural Resources is the current chairman of the African Ministers Conference on Environment whose mandate is to coordinate a continental approach to the myriad of environmental problems.

The environmental problem is currently being tackled properly. Environment is no longer an alien subject to Kenyans. For the last 10 years, conservation campaigns are conducted at political rallies, the local media with the Kenya Broadcasting Corporation having conservation messages during prime time.

The Government has put more attention on agriculture and health research so as to take meaningful steps in environmental adaptations to climatic change.

If farming skills were improved, Kenyans would be able to cushion the environmental crisis that is not just looming in the country, but the whole world in general.

Currently, the Government is doing its best to acquire technology locally and abroad so that Kenyans can be able to have a footing in the direction the environment wind will place the country.

The population trends have been given a serious thought by the Government with Kenya having had the highest population growth rate. The growth rate has gone down and is expected to stabilize at 3.5 percent thanks to the Government's education programme through campaigns and improved living standards for her people.

The Government is in the process of formulating new environmental legislation as well as formulating new environmental laws in order to establish a unified environmental code within the laws of Kenya.

Only recently, the Minister for Environment and Natural Resources Dr Njoroge Mungai pointed out the Ministry planted 12,000 acres of both exotic and indigenous forests around the Mt Elgon.

Early this year, President Moi was invited to deliver a keynote speech at the London conference on the Ozone Layer, not to mention his personal involvement in environmental conservation and tree planting.

The invitation showed the prestigious notch the President had curved for himself in the environmental global community.

UNEP has been in Nairobi since 1975 and it was followed three years later by another UN specialized agency, Habitat, which is in charge of human settlements.

Both the agencies were housed at the Kenyatta International Conference Center, Nairobi.

The Government then donated a piece of land for UNEP to build its global headquarters that would house Habitat and a number of UN agencies. The construction of the headquarters were completed in 1982. The United Nations Headquarters are not just a source of pride and prestige but a source of foreign exchange earning and employment for many Kenyans.

The Government, led by its leader President Moi has been in the forefront, calling on the industrialized world to desist from dumping toxic waste on the poor African nations and giving them, secretly a token for the poisoning of their lands for generations to come.

The country has actively participated in negotiations to ban illegal trafficking of such products.

In the last 12 years, the clarion call for the environment protection has been quite high and Kenyans will in future look into the environmental aspect of any project they will undertake, in their lifestyle and the whole community if the trend continues.

SOUTH AFRICA

Political Parties' Environmental Policies Compared

MB2311095990 Cape Town SOUTH in English 15-21 Nov 90 p 10

[Article by David Lewis: "How Green Is NP or ANC?"]

[Text] No self-respecting political party dares be seen without an environmental policy nowadays.

Announcing your party's commitment to ecological awareness is certainly in fashion. But are the politicos really serious about the environment?

A scrutiny of the position papers on the environment of the African National Congress [ANC), the Pan-Africanist Congress [PAC], the Democratic Party [DP] and the National Party [NP] showed they were remarkably similar.

The differences would seem to be in the way each party chooses to read their own ecologically noteworthy guidelines.

Not long ago Albie Sachs wrote a lucid paper on the ecological rights of "the third generation".

He noted that "the present generation have a responsibility which we owe to future generations of South Africa to preserve the environment for them so that they will find it in a viable and useful form".

This is the concept of "sustainable development", one of the key demands of the environment movement.

Surprisingly, it is also one of the main principles of the National Party's conservation policy and also mentioned in one way or another by both the PAC and DP.

While there is consensus on the notion that it is good to have our planet survive into the future and to continue providing humans with food, air and water, there is much disagreement on how we are to achieve it.

Both the ANC and PAC emphasise the precondition of a free and democratic society, which neither the DP or NP does.

The NP promises that "concerned parties" would be encouraged to participate in decisions affecting the environment.

The DP holds out high hopes for reforming the Department of Environmental Affairs.

Giving more power to the department would make it more effective, according to the DP.

The PAC on the other hand sees the need for an independent environmental ombudsman who would be able to mediate in controversial environmental matters.

The adoption of an environmental code of ethics in a new South African constitution along the lines of the Namibian example is one recommendation that the PAC document specifically mentions.

This was a glaring absence in the ANC proposal—given the already considerable debate on the subject (by Albie Sachs among others).

Industrial Pollution was one subject which aroused mixed feelings. For the National Party, pollution perhaps belongs to another department altogether.

No mention is made of the impact of industry on the environment except in the vaguest of terms, while the DP is in two minds on whether they should end pollution or encourage industry.

For the DP, toxic waste is treated as being inevitable. The main issue is how one can deal with such waste in a safe and controlled way.

The ANC, on the other hand, proposes taxing or fining polluters to discourage polluting activities as well as providing compensation for communities affected by pollution.

This view is supported by the PAC. Incentives would also be given by the ANC to industrialists who develop environmentally sound technologies.

The ANC adds that the dumping of radioactive wastes should be banned.

The DP is remarkably clear about ending air pollution and is the only party to have a policy on global warning and the ozone layer.

They are, however, rather vague as to how these issues would be resolved.

The ANC and PAC see air pollution in the townships as a major problem and see possible solutions in the development of alternative sources of domestic energy such as solar energy to reduce the need to burn coal and other fossil fuels.

The PAC believes future links with the rest of Africa have an important role in pooling resources for the construction of dams for generating cheap and environmentally safe energy.

The DP and ANC are the only parties to have policies on safe farming methods.

They both agreed that toxic chemicals such as fertilisers, pesticides and herbicides used in modern farming practices, should be prevented or controlled.

The ANC says organic alternatives should be encouraged and pest and disease resistant crops planted.

The DP also emphasies the protection of our soil against erosion and overexploitation by incompetent farming methods.

The National Party, on the other hand, has committed itself to maintaining "biological diversity" but does not mention whether this applies to our sources of staple foods or just local fynbos [type of vegetation—FBIS] and wild animals.

A notable omission in all four documents was the lack of any clear policy regarding nuclear power and a commitment to providing an ecologically friendly transport system.

Ecological Forum Finds Flaws in Environmental Law

91WN0090A Ottawa THE OTTAWA CITIZEN in English 24 Oct 90 p A3

[Text] The new environmental assessment package the federal government claims is the best in the world needs major changes, a top-level ecological forum said Tuesday.

The National Round Table on the Environment and the Economy was set up more than a year ago by the prime minister. It includes Environment Minister Robert de Cotret and Finance Minister Michael Wilson, as well as business leaders end environmentalists.

It recommended Tuesday that environmental reforms introduced in June should be tightened, an environmental auditor named and cabinet documents on the ecological implications of government decisions made available to the public.

The round table didn't deal with new legislation—now in second reading—intended to make sure all major projects undergo a review.

Instead, it focused on the second part of the package introduced this spring that would require all proposals to cabinet be assessed for their impact on the environment.

Chairman David Johnston, principal of McGill University in Montreal, said the changes are needed because government departments that put forward the proposals to cabinet will also carry out he environmental assessments.

"There is a need for public confidence in the process."

Both the Cotret and Wilson took part in the discussion of the recommendations, but weren't involved in formulating them. When the round table reached a consensus, the two ministers didn't dissent, said Holtz.

Quebec To Appeal Energy Board Decision on Power Exports

91WN0095A Toronto THE GLOBE AND MAIL in English 26 Oct 90 pp A1-A2

[Article by Barrie McKenna]

[Text] Montreal—Arguing that a recent National Energy Board [NEB] decision has put $22-billion worth of electric-power exports at risk, the Quebec government and Hydro-Quebec are going to court to have the ruling overturned.

"The federal government's intervention in the management of natural resources is a serious and intolerable encroachment upon Quebec's constitutional jurisdiction," provincial Energy Minister Lise Bacon said in Quebec City.

Ms. Bacon said Ottawa is using the pretext of protecting the environment to challenge the province's control over natural resources. She added that developing the province's vast hydroelectric potential is at the core of its economic strategy.

"It is therefore absolutely critical for the Quebec government that all elements of its future be controlled by the Quebec people, as (they have been) thus far," she warned.

The appeal is to be launched in the Federal Court of Appeal. Ms. Bacon vowed to carry the fight to the Supreme Court of Canada if necessary.

On 27 September, the energy board, a federal regulatory agency, issued licences for Hydro-Quebec to export up to 1,450 megawatts of power to utilities in Vermont and New York. But it made the licences conditional on all future export-oriented dams undergoing federal environmental reviews.

Jacques Guevremont, Hydro-Quebec's executive vice-president for external markets, said that means the contracts, which vary in length from 20 to 30 years, will have to be reviewed each time the utility builds a new dam.

"The contracts will be in peril every time a new phase of construction begins," said Mr. Guevremont. ""That's unacceptable."

He said the utility probably will issue a formal licence-review request to the NEB by next Monday, the last day it has the right to do so.

Mr. Guevremont added that Hydro-Quebec needs an answer soon because the deadlines for backing out of the two deals are 30 April 1991, in the case of Vermont and 30 November 1991, in that of New York. If Hydro-Quebec cancels after those dates, it could have to pay $4-billion in compensation to the purchasers.

To create power for export to the United States, Hydro plans to speed up construction of two megaprojects: Great Whale, about 1,200 kilometres northwest of Montreal, to be completed by 1998; and Nottaway-Broadback-Rupert, to the south, to be finished by 2006. The utility has earmarked $24-billion for construction of new dams between 1991 and 2000.

Mr. Guevremont said Hydro-Quebec cannot afford delays and will do everything it can to see that work begins as soon as possible. The utility wants to begin in early January bulldozing a 200-kilometre access road to the Great Whale site.

A lawyer for the Grand Council of the Crees of Quebec, which has been fighting Hydro-Quebec's dam projects in the courts and had hailed the NEB decision as a victory, said yesterday the Crees and several environmental groups will seek intervener status in the appeal court case.

Yesterday's decision to launch an appeal is just the latest volley in a fight that has pitted Hydro-Quebec against the federal government, the Crees and environmentalists.

Toxic Gold Tailings Flow Into Montreal River; Cleanup Costs Projected

Contamination of River

91WN0096A Ottawa THE OTTAWA CITIZEN in English 25 Oct 90 p A4

[Article by Chris Hall]

[Text] Toronto—Three cabinet ministers will fly to Northern Ontario today to take stock of a toxic plume spreading through the Montreal River.

Officials have battled for a week to control the environmental damage caused when wastes—left in what's called a tailing pond—from a long-abandoned gold mine washed into the river near Matachewan, about 70 kilometres southeast of Timmins.

Natural Resources Minister Bud Wildman said Wednesday they also want to see what can be done to prevent similar accidents at the hundreds of such ponds dotting Northern Ontario.

The ponds, which contain metals and other wastes discarded during mining operations, are major environmental hazards, he said.

Unlike oil slicks, which rest on top of water, the dirty plume in the Montreal River consists of silt-like particles floating through the water. It now stretches more than 50 kilometres.

It was swept into the river when a beaver dam on a nearby lake broke during heavy rains, washing over the tailing pond.

The contaminated water left its mark on a 1.6-km stretch of a creek that cuts through the wilderness to the Montreal River, which flows into Lake Timiskaming and the Ottawa River.

"All aquatic life in that stretch of the creek has been destroyed," said Kevin Weaver, a Ministry of Natural Resources spokesman in Matachewan.

"Our biologists say, with reclimation work, it will be 7 to 10 years for it to come back."

And the Environment Ministry has been trucking bottled water to 36 households southeast of Elk Lake, which is about 30 kilometres downstream from the mine, because of the contamination. People in the town of 600 are getting their water from intake pipes in the Makobe River, which is not affected.

Despite the damage, ministry officials on site believe the worst is over.

Water samples taken from the river Tuesday already indicate concentrations of lead have dropped from .27 milligrams per litre to .13 near Matachewan and .08 downstream near Elk Lake.

Other contaminants, such as mercury, zinc, arsenic and cyanide are within acceptable levels.

Ontario Abandoned Mines Cleanup Costs

91WN0096B Ottawa THE OTTAWA CITIZEN in English 25 Oct 90 p A4

[Article by Tom Spears]

[Text] The torrent of water flushing silt and heavy metals 50 kilometres down a Northern Ontario River is only the most noticeable example of pollution coming from many Ontario mines, experts say.

And one study says it would cost $3 billion over 20 years to solve the problem across the province's North.

The mining industry says the most serious type of pollution is acid runoff—a cousin of acid rain—coming from an unknown number of the abandoned mines that dot the Canadian Shield.

A joint 1988 report by governments and the Mining Association of Canada found that 20 of 100 abandoned mine sites examined in Ontario pose a significant danger of runoff pollution.

The common factor in the mines is sulphuric acid, which dissolves minerals like zinc, lead, mercury and nickel and carries them with the runoff water.

"The resulting acid mine drainage can pose a threat to human health and to the natural environment," the 1988 report said.

The runoff problem "is a kind of accelerated weathering," said George Miller, president of the Mining Association of Canada. Oxygen or water mix with the ground-up bits of rock raster than they would mix with solid rock slabs, he said.

Another problem is that gold mines once used cyanide and arsenic to remove gold from the ore, and the waste arsenic and cyanide were often left behind with the rock tailings, said John Steele of the provincial Environment Ministry.

And no one knows how many such mines there are. "These mines that went belly-up in the '30s, '40s and '50s are all over the place," Steel said.

"I don't have a good idea myself," said Miller. "There's quite a large number."

The government itself owns many of the mines, which were dug on Crown land decades ago and later abandoned.

Some of the trouble spots are:

- The Kam Kotia gold mine near Timmins. Abandoned in 1972, it reverted to government ownership. Residents around a nearby lake and river complain that a steady stream of water tinted orange or red from its iron content washes downhill from the mine site to people's homes.
- The former Dyno and Bicroft uranium mines south of Bancroft. Five million tonnes of tailings from two uranium mines—including a semi-refined type of uranium called yellowcake—are still lying on the ground and in pits and ponds. Fish in one small lake have 10 times the normal level of radiation. The mines have been abandoned since the 1960s, but local residents can't persuade the federal or provincial government to begin any cleanup action.
- The Consolidated Matachewan gold mine outside Elk Lake, scene of this week's pollution. Miller says this mine doesn't have an acid problem, so the heavy metals released shouldn't be dissolved and absorbed into the food chain.

Ottawa Seeks To Halt Rafferty Dam in Saskatchewan

91WN0097A Toronto THE TORONTO STAR in English 23 Oct 90 p A13

[Text] Regina (Special)—The federal government has made an urgent application to the Saskatchewan Court of Queen's bench to halt construction of the controversial Rafferty-Alameda water storage project.

The court action seeks to stop further work on the Rafferty project except for safety reasons and for a cessation of construction work and land-buying at Alameda.

If the injunction is granted, all work on the two dams would be suspended until an environmental review is completed.

Government lawyers said the application will be heart Thursday.

A memorandum to the court from the federal justice department states: "the defendants (Saskatchewan) are causing and will continue to cause irreparable harm as the defendants are carrying out work with an irreversible effect on the environment before the review panel has been able to recommend measures to mitigate environmental losses..."

Last week the Saskatchewan government ordered completion of the Rafferty dam as quickly as possible and started Alameda site preparation and property acquisition 200 (120 miles) kilometres southeast of here.

Environmental Review Waived in British Columbia Alcan Project

Federal Government Decision

91WN0089A Toronto THE GLOBE AND MAIL in English 15 Oct 90 p B6

[Text] Vancouver—The federal government has decided to exempt Alcan Aluminum Ltd. from holding an environmental assessment review for its Kemano hydroelectric expansion project in northwestern British Columbia.

The $800-million Kemano completion project near Kitimat already meets the criteria required under the government's review process, Fisheries and Oceans Minister Bernard Valcourt said.

He said the project, under construction since 1987, has been subject to detailed examination regarding fisheries and environmental issues.

Alcan has agreed to modifications pointed out by the studies, he said.

"The 1987 Nechako settlement agreement is an excellent example of sustainable development, allowing economic development to proceed with ongoing implementation of mitigative measures as required," said Mr. Valcourt.

The power project has been under fire from environmentalists and natives, who question its impact on water levels and temperatures on the Nechako River, 600 kilometers northwest of Vancouver.

They contend the water diversion could harm important salmon spawning grounds.

The project, designed to add 540 megawatts of power to Alcan's Kemano generating facilities that serve its Kitimat smelter, is scheduled to be completed in 1994.

Opponents, who include Indian bands representing 10,000 people, have threatened to go to the Federal Court of Canada to block the project.

However, Mr. Valcourt said the agreement between Ottawa, the B.C. government and Montreal-based Alcan, takes environmental concerns into consideration. It's fully consistent with his department's policy providing for no net loss of fish habitat, Mr. Valcourt said.

SUN Editorial Dissent

91WN0089B Vancouver THE WEEKEND SUN in English 20 Oct 90 p B4

[Editorial]

[Text] Federal Environment Minister Robert de Cotret has got it backwards. He should give up the lost cause of trying to stop the Rafferty-Alameda dam project in Saskatchewan and concentrate on Alcan's Kemano expansion project in this province, where he could still do some good.

The Rafferty dam is almost finished. Even if Mr. de Cotret gets a court order to stop construction, and even if the project fails to pass a new environmental assessment, an international treaty requires it to be completed. Game over.

But with the Kemano project it's a different story. This one has never been subjected to any assessment by an environmental review panel. It was approved on the basis of an assessment by the fisheries department that is now highly suspect.

One retired fisheries biologist alleges a political decision was made to ignore the advice he and two other lead scientists gave against the Alcan plan that the government agreed to in 1987. Another has said great pressure was put on the staff of the Pacific Biological Station to rationalize the project.

It's too late to make much difference to the Rafferty-Alameda project. But there is still time to avoid the possibility of making an awful mistake that might do permanent damage to the fishery on the Nechako and Fraser Rivers.

The provincial government, as a signatory to the 1987 agreement, should insist that Mr. de Cotret order a full environmental review of the Alcan project, complete with public hearings.

If, as the federal government claims, the studies carried out have satisfied all environmental concerns, then Ottawa and the company have nothing to fear from the full disclosure that's needed to reassure the public that the project poses no serious risks.

State Council Circular on Environmental Protection Industry

OW2411164990 Beijing XINHUA in English 1450 GMT 24 Nov 90

[Text] Beijing, November 24 (XINHUA)—The State Council's Environmental Protection Committee issued a circular calling for active development of the country's environmental protection industry.

The circular said that it is necessary to develop the industry to realize the targets set for environmental protection and to guarantee a continued rise in the national economy.

The areas of the environmental protection industry and the related products which currently need to be developed include advanced, reliable, economic and highly-efficient air and water pollution control equipment, waste treatment equipment, water and energy saving devices, electronic and biological projects, and hi-tech industrial environmental equipment.

The circular also pointed out that the research and popularization of new environmental protection technology and work processes and new materials should be part of the state key scientific development programs.

Research and production along with the development of an environmental technical market should also be enhanced, the circular said.

It stressed the importance of adhering to the opening policy [as received] and continued international economic and technical exchanges and cooperation.

State Council Issues Environmental Circular

OW2511054490 Beijing XINHUA Domestic Service in Chinese 1939 GMT 23 Nov 90

[Text] Beijing, 24 Nov (XINHUA)—The State Council General Office recently relayed a circular concerning suggestions made by the State Council's Environmental Protection Committee on making vigorous efforts to promote the development of the environmental protection industry, calling on all areas and departments to carry them out in earnest.

The circular noted: The environmental protection industry is the material and technological basis for protecting and improving our environment, as well as for preventing and dealing with pollution and other pollution-related threats to the public. Having achieved a preliminary scale of development after more than 10 years of effort, the environmental protection industry in our country has made positive contributions in environmental protection by providing many products and services. It is necessary for us to make vigorous efforts to develop our country's environmental protection industry for the purposes of obtaining full returns from investments in environmental protection, guaranteeing the achievement of the targets set for environmental protection, and protecting and promoting the development of the national economy. The circular raised the following suggestions:

1. It is necessary for the people's governments at all levels and the relevant departments to have an adequate understanding of the important significance of the development of the environmental protection industry to prevent and eliminate environmental pollution, as well as protect of the ecological environment; give priority to promoting development of the environmental protection industry while making efforts to readjust the production structure on the basis of the guidelines of the "State Council's Decisions on the Major Points of the Current Policy Toward Industries;" strengthen leadership conscientiously; and create conditions wherever possible to actively support and guide the development of the environmental protection industry.

2. The guiding principle for development of the environmental protection industry is improving the quality of environmental protection products and engineering to provide material and technological guarantees for the protection and improvement of our environment, as well as the prevention and elimination of pollution and other pollution-related threats to the public in the course of the current campaign to improve the economic environment, rectify the economic order, and deepen the reform.

3. The major products that badly need to be developed by the environmental protection industry include equipment for control of air and water pollution; facilities for processing solid waste material; facilities for the multiple utilization of the resources from waste material; noise vibration-control equipment; facilities for saving water and energy; technical equipment for environmental protection in the electronics, bioengineering, and high-tech industries; substitutes for chlorofluoride hydrocarbon compounds and technical equipment for their recycling; equipment for dealing with pollution emergencies; various materials for the special purpuse of environmental protection; human engineering; agricultural ecological engineering; an environmental afforestation project; and technology for the proliferation of economic plants and animals, as well as rare species of wildlife animals and plants that are on the verge of extinction and are good for ornamental purposes. All the products and technologies mentioned above must have advanced functions and be reliable, economical, and highly efficient.

4. We must rely on scientific and technological advances to promote the development of the environmental protection industry. The research and popularization of the new technical knowledge, technologies, equipment, and materials for environmental protection should be incorporated in the key scientific and technological programs that are to be tackled, the "Spark Plan," and the "Torch Plan." It is necessary for scientific research departments, colleges and universities, and

enterprises to increase their efforts in developing technologies for environmental protection; improve cooperation and coordination between scientific research and production; and find new markets for environmental protection technologies and organize tenders for the scientific research projects of their products in an effort to turn the research achievements into productive forces as soon as possible.

5. Efforts should be made to improve the economic performance of specialized operations and increase the returns of the economies of scale; spread the pattern of services offered by package contracts far and wide; and use market mechanisms to support the key enterprises that turn out products of excellent quality, achieve good economic results, and are sticking to the course of development, as well as the units specialized in the design, construction, and installation of large and medium-sized environmental projects that suit all purposes.

6. Efforts should be made to earnestly straighten out the order of production and circulation in the environmental production industry. All responsible departments will conduct general inspection, registration, and examination and verification of the enterprises and institutions of the environmental protection industry to put them in different categories of administration. A system of standards for the quality and prices of the environmental protection industry will be set up. Supervision and control over the environmental products and equipment will be strengthened. A number of centers for testing and examining the quality of products for environmental protection will be set up step by step. The results of spot-checks and appraisals of the products will be made public regularly in order to actively select the products of excellent quality through appraisal and keep in production and, meanwhile, get rid of inferior products. Standards for design, construction, and inspection and acceptance of environmental projects will be set up to improve the work of quality control, inspection, and acceptance. Various technical services, including consultation, estimates, calculation, monitoring, and so forth, and operations to protect nature need to be incorporated in the orbit of standardized administration.

7. The policy of opening to the outside world will be adhered to. Various forms of international economic and technological cooperation and exchanges will be conducted at various levels to introduce and assimilate advanced technologies for the prevention and treatment of pollution and to import their reasonable equipment that has high efficiency and low consumption of energy at low cost. Our country will take active part in tenders for projects of environmental improvement and ecological protection abroad and make efforts to explore the international market.

8. All avenues will be opened for talented people. Vigorous efforts will be made to train and recruit the graduates of colleges, universities, and technical secondary schools that major in environmental protection, as well as the technicians and professionals in this field, so as to keep improving the specialized technical level of the contingents of the environmental protection industry.

9. The positive role played by all departments and their affiliated organizations will be brought into full play. The existing relationship of jurisdiction and the scope of administration will remain unchanged. It is necessary for all relevant departments or their affiliated organizations to draw up plans internally for the development of the environmental protection industry, as well as relevant administrative measures, and carry them out. As a supervisory and administrative department that enforces the laws, the department responsible for the administration of environmental protection in the people's governments at all levels is not permitted to establish an environmental protection company directly under it or take part in business operations of the products for environmental protection. This mandate applies to every responsible department; none is exempt.

10. A group for coordinating the development of the environmental protection industry will be established under the Environmental Protection Committee of the State Council. It will be responsible for drawing up plans, guiding principles, and policies for the overall development of the environmental protection industry. Meanwhile, the State Planning Commission will be entrusted to issue a periodical catalogue of the products that the environmental protection industry will give priority to developing and coordinate the work of all relevant departments by providing guidance for them.

Environmental Protection Bureau To Publish China Yearbook

OW1611091590 Beijing XINHUA in English 0841 GMT 16 Nov 90

[Text] Beijing, November 16 (XINHUA)—The 1990 China Environment Yearbook, the first of its kind in China, will soon be published.

The yearbook is also an encyclopaedia of environmental protection in China.

The contents include China's policies, laws, rules, regulations and criteria related to environmental protection. There are also records of all the major environmental protection events and construction of major projects as well as the prevention and control of urban and industrial pollution, ecological protection, construction of nature reserves, and related forums.

Big events related to environmental protection in Taiwan, Hong Kong and Macao are also included.

The yearbook was compiled by the State Environmental Protection Bureau and will be published by the China Environmental Science Publishing House.

International Atomic Energy Agency To Check Daya Bay Nuclear Plant

HK1411020390 Hong Kong SOUTH CHINA MORNING POST in English 14 Nov 90 p 3

[By Shirley Yam]

[Text] The International Atomic Energy Agency will conduct its first safety assessment on the operation of the controversial Daya Bay Nuclear Plant this month.

A 14-member delegation from the authority was invited by the China Nuclear Industry Corporation and the Guangdong Nuclear Power Joint Venture Company to conduct the three-week study, beginning on November 26.

Apart from officials of the agency, the delegation will also include experts and observers from the United States, Germany, Japan, Italy, Canada, Czechoslovakia, Romania, Pakistan and Poland.

Meanwhile, a spokesman from the nuclear power company announced that two French and American companies, the Electricite De France and the Bechtel Power Corporation, had been employed to provide the necessary management techniques for the plant and to serve as the quality controller for its construction, operation and management.

More than 130 experts have already been deployed to the joint venture company's engineering and quality control departments.

In another development, a member of the plant's consultative committee, Professor Poon Chung-kwong, speaking about reports of possible corrosion of the plant's generators which could cause leaks of radioactive substances, said no review would be conducted at present.

Hunan Issues First Environmental Status Report

91WN0008A Changsha HUNAN RIBAO in Chinese 7 Sep p 2

[Staff Article: "Strengthen Environmental Management, Purify Hunan's Land and Waters"]

[Text] On 1 September, the Provincial Environmental Protection Bureau issued the "1989 Environmental Report for Hunan" in Changsha. This is the first time such a report has been issued.

The report states that the atmospheric environment in the province is generally good. Air pollution is concentrated mainly in cities and industrial and mining areas, where smoke from burning coal is the principal contributor to pollution. The major pollutants are sulphur dioxide, waste fumes, and then airborne particles. According to statistics, in 1989 the province discharged a total of 265.4 billion standard cubic meters of waste gas, an increase of 4.2 percent over the previous year. Of this, 388,000 tons were waste fumes, a slight increase over the previous year, and 578,000 tons were sulphur dioxide, an increase of 14.4 percent, the 11th highest in the nation.

According to monitoring, the average value of the daily mean of sulphur dioxide emissions over the past year for 14 main cities in the province was 95 micrograms per cubic meter. The average value of the daily mean of waste fumes was 270 micrograms per cubic meter, which was an average decline for each city compared to the previous year.

With regard to water pollution, the report recognizes that the water quality of the provinces' main rivers is basically good overall. Pollution is relatively severe in those stretches of rivers which flow through cities and industrial or mining areas.

Water quality in the Xiang, Zi, Ruan, and Li Rivers, in Dongting Lake, and in the stretch of the Chang Jiang near Yueyang is basically the same as in the previous year. However, total phosphorus and nitrogen pollution has increased in certain areas. Parts of the Xiang River are still polluted by heavy metals, although there has been some improvement in the Hengyang section of the river, while Dongting Lake tends to have an overabundance of nutrients. The total length of the four rivers is 2279 kilometers; if calculations include polluted areas along the banks, then 500 kilometers suffer visible pollution, which accounts for 22 percent of the rivers' length. Pollution is quite serious along 130 kilometers of the rivers, or six percent of the total length.

According to statistics,the province discharged 1.96 billion tons of industrial waste water in 1989, an increase of 1.3 percent over the previous year, and the fourth highest discharge of waste water in the nation.

With regard to noise pollution, the report points out that in 1989, of the eight cities under provincial administration, Changsha, Zhuzhou, Xiangtan, Yueyang, and Changde had average traffic noise which exceeded the standard (70 decibels). However, the degree of traffic noise decreased slightly compared with the previous year. Environmental noise in all functional areas in cities exceeded the standard.

In terms of the ecological environment, the report states that currently the province has a total of 113.07 million mu of forested land, 44.65 million mu of which were planted by man. The percentage of forest cover is 35.3 percent, and there are 185 million cubic meters of timber reserves. Compared with 1975, the forested area has increased by 4.02 million mu, and forestry coverage has increased by one percent. However, because it is hard to recover from the consequences of excessive tree felling in a short period, as well as from destruction caused by indiscriminate land clearing, there are still 44,000 square kilometers which suffer soil erosion; this accounts for 20.8 percent of the total land area. There are 25 counties and cities with serious soil erosion. Most of them are

located in the northwest, west, and center of the province, and they lose a total of about 152 million tons of soil through erosion each year.

The report says that environmental conditions in most rural areas are good. However, because industry and township enterprises has been developing more quickly, there has been a tendency for pollution to spread from urban to rural areas. Small-scale vanadium smelting in Yueyang, local arsenic smelting methods in Chenzhou and Hengyang, local coking and sulphur smelting methods in Loudi and Shaoyang, and small-scale panning in Yiyang, Huaihua, and Lilin result in damage to waterways, water pollution, and destruction of land and mineral resources. There are over 300 small paper mills which create fairly serious pollution in the tributaries of the Dongting Lake water system. This affects the sources of drinking water and water used in agriculture.

There are 51 nature protection areas of various kinds in the province. They cover a total area of 380,000 hectares, or 1.8 percent of the province's total land area. Three are national protection areas, namely Dayong City's Zhangjiajie, Suoxiyu, and Badagongshan, while 21 are provincial areas, and 27 are county areas.

There are 133 species of wild animals and plants in the province which the state has designated as protected. Of these, 61 are animals and 72 are plants. The state has established 14 artificial breeding farms for rare and precious wild animals and 16 farms for introducing and raising rare and precious wild plants.

The report points out that the provincial government set up an Environmental Protection Committee in 1989 to strengthen leadership of environmental protection work. Governments at all levels, all departments, and all units have conscientiously implemented the spirit of the Third National Environmental Protection Conference, established a new order in environmental protection in the midst of improvement and rectification, and have made new progress.

In 1989, the province set up 2,548 projects to control pollution and completed 1,128 projects of them, for a completion rate of 44.3 percent. The capacity to process the "three wastes" was increased, so that 128 million tons of waste water, 1.779 billion standard cubic meters of steam, and 3.59 million tons of waste residue can be processed. The ability to prevent and treat pollution has increased somewhat.

In 1989, the Environmental Protection Committee of the State Council cited 100 enterprises advanced in environmental protection for their excellent achievements in the prevention and treatment of industrial pollution. On the list were Changling Chemical Refinery, Yueyang General Chemical Plant, Zhuzhou Hard Alloy Factory, and Jiannan Machinery Manufacturing Plant, all located in Hunan. The provincial government also awarded the title of "a clean and civilized plant" to the Southern Power Machinery Industrial Company and two other enterprises. Meanwhile, the provincial government decided that environment protection standards be a prerequisite for upgrading enterprises, and they could be used as grounds for vetoing the title of advanced enterprise. The first time that five enterprises had their advanced enterprise titles vetoed, it was effective in promoting enterprises' environmental management and pollution controls.

The report states that currently the province still faces a serious environmental situation. Environmental protection work is arduous, and there is a long way to go. All of society should constantly increase environmental awareness, conscientiously strengthen environmental management and pollution controls in accordance with the Environmental Protection Law, and make special efforts to purify and beautify the land and waters of Hunan Province.

Optimal Allocation, Coordinated Development of Society's Resources

HK0311045190 Beijing JINGJI YANJIU in Chinese No 9, 20 Sep 90 pp 3-8, 49

[Article by Li Bin (2621 2430) of the Social Sciences Institute of Jilin province, edited by Zhang Jing (1728 7234): "On Optimal Allocation of Society's Gross Resources—A study on coordinated Economic, Social, and Ecological Development"]

[Text] Economic, social, and ecological environments are the three operational systems of society's existence and progress. The essence of their coordinated development is to seek their best combination and structure. Discovering the decisive factors for the structuring of the economy, society, and ecology, that is, the operational mechanism for their coordinated development, plays an exceedingly important role in facilitating economic, social, and ecological development.

I. The Question of Allocating Gross Resources and Its Significance

In my opinion, the basic point in coordinating social, economic, and ecological development is the optimal allocation of society's gross resources. This is the basic conclusion of a survey of the current development of our country's economic, social, and ecological environment. For a prolonged period, our country has attached importance to the opening up and utilization of economic resources but overlooked beginning with gross resources to coordinate the development relations of the economy, society, and ecology. This has unavoidably caused imbalances in the operation of the three great systems. This serious imbalance has historical causes and reflects errors in construction policies, but more importantly, it is related to defects in the theory of allocation of resources.

The defects in the theory of the allocation of resources principally refer to the unitary and narrow nature of the theory, brought about by the imperfect understanding of the category of resources, it is concretely manifested on

the following: (1) Narrow demarcation of the category itself. Resources customarily talked about have been limited to mankind's social activities, that is, the economic side, and hence resources have frequently been interpreted as equivalent to economic resources. In the concrete activities of a commodity economy, production and exchange demand the conversion of economic resources into value form for computation, that is, manifested in prices of essential factors of production. Thus, economic resources are reduced to the category of essential factors of production. (2) Misinterpretation of the scarcity of resources. Resources allocation in the narrow sense considers the effective utilization of scarce resources, because in the minds of people, substances like air, water, and forests are endowments from nature and have unlimited availability for use, whereas, only the insufficient supply of raw materials, energy, and labor force can form the impassable barrier to economic development. As a result, the waste and destruction of natural resources have become general phenomena. In reality, any resource is scarce and has a limited supply. First, there is a limit to gross supply. The supply volume of the majority of natural resources has a limit within a stated period. For example, the capacity of our country's existing forests, animal husbandry, and cultivated land in respect to the population is nearing its limit; the shortage and stringency of water supply in urban areas is common; and natural water surface- area has been shrinking continuously over the past 40 years; the area of lakes and ponds has been reduced by 20 million mu. Second, there is a limit to the quality of supply. Although there is no quantitative limit to the supply of air, an up-to-standard, clear, and clean atmospheric environment is decreasing daily; mining ores of high and superior quality, and good-quality forests are also becoming scarce; while talented individuals to modern construction needs are scarce, and so on. The serious drop in the quality of the supply of resources is equivalent to the fall in supply quantitatively. Third, limitation of time. Although resources like forests and mines can be rebuilt, the period of growth takes decades or even hundreds of years. Concentrated and excessive consumption will make the supply of resources difficult, will cause a drastic reduction in supply after a period of time, and may even cause certain resources to become exhausted. Only through a renewed understanding of the problem of the shortage and scarcity of resources can we practice the economy of resources as a whole. (3) the influence of the limited character of capitalist production. Under the conditions of a capitalist eocnomy, so far as the capitalists are concerned, they only care about the profit rate on the capital they have advanced, and the coordinated development of society, economy, and ecology, is frequently overlooked. Several centuries of eclonial rule has enabled capitalist countries to obtain at cheap prices, or even to pillage without compensation, large amounts of resources from outside their territories. Although this was undoubtedly the material precondition upon while certain countries became wealthy, because the amount of capital spent in obtaining this precondition was infinitely small, for a protracted length of time in theory what people have attached importance to is the analysis of the total amount and composition of the direct production expenses; that is, the problem of the allocation of the essential elements of production. Thus, there has been a continuous shrinkage of, from allocation of resources allocation of economic resources allocation of the essential factors of production. In fact, social development is an extremely complicated operation which involves many sides. It principally relies on support from the operation and reciprocal functions of the three large systems of the economy, society, and ecology. The high price of the current environmental disruption and pollution, objectionable to social progress, have negatively revealed to us that merely attaching importance to carrying out the allocation of the essential factors for economic growth will not realize coordinated economic, social, and ecological development. If resources allocation as the operational starting point of the various systems is simply taken to be allocation of essential elements of production, then this will inevitably lead to contradictions, such as forging forward yet lagging behind in the operation of the systems, causing the serious imbalance in economic, social, and ecological development. Hence, in order to solve the problem of the coordinated development of the three systems, it is necessary to first of all achieve a breakthrough in theory, and to set up the concept of the optimal allocation of society's gross resources.

Gross resources refer to the sum total of the basic essential elements forming the environment of the three large operational systems of economy society, and ecology. In general, they may be divided into three categories: (1) Natural resources, including such natural wealth as land, forests, mines, and living things, and also such natural environmental resources as live water, weather, scenery, and so forth. (2) Resources of essential factors of production including labor force, means of production, management, news and information, and enterprises engaged in production and operation. (3) Intellectual resources including science, technology, culture, social ideas, moral standards, and national quality and character. The various constituent portions of social, gross resources are mutually dependent and have mutually restrictive relations. In their static state, none of the essential elements of the gross resources can be absent or replaced, otherwise there will be dire effects on the normal circulation and cycling of the three large systems of the economy, society, and ecology; on their mutual adaptation and coordination; and this may even lead to changes in the general structure. In their dynamic state, only when the various essential elements of the gross resources realize a balanced allocation can there be an optimal and coordinated development of the three systems. It can thus be seen that optimal allocation of the gross resources is the key to the coordinated development of the economic, social, and ecological environment; its important significance is mainly illustrated in the following:

First, allocation of gross resources comprehensively reflects the basic condition of the essential elements of

social development and reveals the innate liaison in the development of the economic, social, and ecological environment. Imbalance in economic, social, and ecological development is principally due to the inability on the part of the various systems themselves to perform mutually facilitative functions and, on the contrary, they constrain and have disruptive effects on each other. Allocation of the gross resources places the amelioration of the general body structure of the three large systems first and contends that allocation of ecological resources is the foundation for mankind's existence and society's long-term development; allocation of the essential economic elements is the basic measure pushing social development and occupies the central position in the three large operational systems; and development of the resources of social wisdom and intelligence is the innate motive power in pushing economic, social, and ecological development and has important effects on economic and ecological development. Hence, in a fixed stage, the level of economic growth must be adapted to the level of ecological utilization and the growth in the capacity of environmental protection, while the development of the wisdom and intelligence in society and the level of management must be adapted to the objective needs of economic development; form and perform a benign and facilitative role; and thereby effect the co-ordinated development of the three large operational systems.

Second, the effects of allocation of gross resources are the unification of economic, social, and ecological effects. They constitute a sort of structural effect and are manifested by the ratio between consumption of gross resources and gross effects. They may also be looked at as a comprehensive evaluation of the economic, social, and ecological effects. In the decision making on a certain investment, if we only consider the direct expenses versus the direct benefits then even though there are profits to be gained, it may not conform with the demand of the effective allocation of gross resources within the social scope. This is because the price of the essential elements of production cannot correctly reflect the scarity of gross resources. For example, the worth of certain scenery is difficult to evaluate; it is a commodity that cannot be replaced. Following the increase in the sight-seeing and tourism, this source of wealth is increasing yearly. But if a certain construction project is undertaken, it could destroy the original scenery. If this is coupled with disadvantageous changes in the environment and the loss of other regional characteristics, then although the project itself could have definite economic benefits, the cost in the allocation of gross resources will no doubt be frightfully high, and this is hardly adaptable to a fitting evaluation of comprehensive benefits. Indeed, we should, through making an analysis of the effects of the allocation of gross resources, make a correct evaluation of the scarcity of various resources; and from the organic integration of the economic, social, and ecological effects, study the feasibility of a project so as to economically, and at a highly efficient rate, make use of the various resources within society's scope.

Third, the optimal allocation of gross resources is beneficial to the establishment of a macroeconomic control system over the coordinated development of the economic, social, and ecological environment. In actual work in the past, in solving the contradiction between the three operational systems, in general the partial form of regulation after the occurrence of the incident was adopted, and was frequently remedy and relief. The result was "healing the pain without effecting a complete cure." No attempt was made to seek consciously, and in a planned manner, the realization of a balanced development of the economy, society, and ecology. The optimal allocation of gross resources, if stressed, can from many sides such as territorial regulations, industrial policy, the national economy, and social development planning and distribution of national income, establish a macroeconomic adjustment and control structure; and, based on the demands of optimal allocation of gross resources, consciously seek the coordinated development of the three sides, leading all microeconomic activities onto the track of the balanced operation of the three systems.

II. Target Value of the Optimal Allocation of Gross Resources.

The process of any social development must be linked with a fixed target; the three large systems are no exception. In order to realize the best allocation of gross resources, we must also determine a scientific target value. The target of optimal allocation of gross resources embodies contents on two sides:

First, on the basis of a suitable consumption of the gross volume, to satisfy the current needs of the masses. Socialism's basic development purpose is to satisfy the people's daily growing material and cultural needs, but in each and every stage of development, the degree of satisfaction must tally with national conditions and strength, that is, tallying with supply in the consumption of gross resources. Consumption of gross resources is manifested in the two aspects of consumption in kind and in value. The limit of consuming the amount of materials in kind is: That the consumption volume of resources in a stated period can be replaced or compensated for within the same period by reproduction or rebirth of resources, that is, the growth speed in the consumption of gross resources must correspond to the growth speed in the supply, and the growth in consumption should be lower than, or at least equivalent to, the growth in supply. This constitutes the restriction in gross volume on the consumption of resources. At present, on the side of the consumption of gross resources, the prevalence of short-term acts is rather serious. From 1970 to 1987, reduction in the area of cultivated land was 52.51 million mu, averaging a yearly reduction of over five million mu; the volume of annual consumption of timber exceeded growth by about 100 million cubic meters; the recovery rate of mining resources was only 50 percent; in addition, taking into account the population factor, the per capta volume of resources has been mostly lower than the world's average level. Following social

development, the volume of consumption of resources is bound to increase and the contradiction between the limited nature of resources and the enormous demand will be all the more outstanding. Only through setting up the principle of a suitable quantitative consumption of resources and carrying out restriction of a compulsory nature, can we ensure the continuity of long-term economic, social, and ecological development; focusing only on quality will not effectively control the waste and disruption of resources. Seen from the aspect of value, a suitable degree of consumption has a double yardage. One is, the consumption of the value of resources in a certain production or investment project must be compensated in the course of the realization of product-making and/or the operation or use of the facility. The second is, that the benefits obtained from the consumption of a fixed volume of resources must be larger, than, or equivalent to the cost of input into the reproduction of a fixed quantity of resources. The former is a microeconomic rational principle while the latter is a macroeconomic one. Here the second yardage is of greater importance. We must clearly understand that prior to any great change in production technique, the rise in the cost of the reproduction of resources has a rigid characteristic. Due to our country's irrational price structure, generally speaking, the prices of near-term or current resources tend to be low and cannot objectively reflect the scarcity of resources. Moreover, certain departments have been operating in the red for a long time, not to mention their inability to maintain an equilibrium with the anticipated cost of production. Besides, the departments that consume resources have been accustomed to free and wanton use which has made the benefit-yielding rate in the consumption of resources in our country extremely low. Hence, we should rapidly change this situation and raise the efficiency rate in the output of resources so as to accelerate industry's progress to intensive operations.

Second, rationalizing the structure for allocation of gross resources and ensuring the maximum satisfaction of the masses' long-term needs. That is to say: Through coordinating the proportionate relationships in allocation, make the economic, social, and ecological systems form a benign cycle suited to each other, continuously raise the supply power of gross resources, and ensure the realization of the people's long-term interests. These relations can also be shown by the following formula: Y=F. R (k, l, r, t.....) (in which Y is the function of the increase in per capita national income, R is gross resources, and k, l, r, t are respectively the various resources of means of production, labor force, land, technology, organization, and so forth). In this form of function, changes in the combination structure of the various resoruces will directly affect the changes in output and also affect the degree of satisfaction of the people's material and cultural needs. Under the conditions of a commodity economy, an increase in input into any resources requires the use of money, and the amelioration of the structure of allocation of resources is manifested in the last analysis in the amelioration of the investment structure. Hence, rationalizing the structure of the allocation of resources must be based on the role that can be played by the various kinds of resources vis-a-vis the stated development target; and from among the best combination of the use effects of the various resources selecting the investment direction and determining the distribution ratio of the investments. Seen from realities in our country, in ameliorating the structure of the allocation of the gross resources it is necessary to readjust the proportionate relations of investments. On the one hand, on top of the weak links in the coordinated development of the economy, society, and ecology we increase investments and raise the power of supply and coordination, and this will be manifested in increases in four respects; First, increase the production and supply capacity in energy, water resources, and raw materials, and increase the construction of basic facilities such as transportation, news and intelligence, harbor tunnels, and so forth; second, increase investment in technological progress, and in fixed assets investments carry out or realize the increase in innate growth principally through technical transformation, and increase the investment ratio in the development of new products, new artcrafts, and new technologies; third, increase investments in culture and education because the role played by the essential element of labor principally depends on the increase in the wisdom and intelligence of the workers, and variations in their brain power mean different contributions to the growth of the economy and in social civilization—in Japan, the effects or benefits of investment in wisdom and brain power account for 25 percent of the increase in the national income, in the Soviet Union 30 percent, and in the United States 33 percent. At present, an important impediment to economic growth in our country is the shortage of highly intelligent workers, and this is the result of the prolonged neglect in investment in manpower. Fourth, increase investment in environmental protection and halt deterioration in the ecology. On the other hand, based on the substitutive relations of the various kinds of resources, proceed with creating the best composition. One thing is, starting from the innate relationship among economic, social, and ecological development, developing production or enterprises which are coordinated in dual directions or many directions, such as developing water-saving or energy-saving industries, ecologically balanced agriculture, social educational enterprises which integrate economy and society, and construction activities in spiritual civilization. The other is enforcement of transformation of resources and substitution at a highly efficient rate. For example, take agriculture: Although the possibility is not large of increasing the per capita cultivated land area, resources outside the realm of cultivated land have great potential. In addition, in the course of the open door policy, let there be integration of the international rich agricultural resources and our country's resources of rich agricultural labor power and pursue labor export, and thus form the pattern of a common enjoyment of resources. So- called substitution at a highly efficient rate means placing the limited investments in localities and projects wherein the investment returns are at the marginally rising state, and we

should refrain from undertaking substitutions of a low efficiency rate or with no result. For example, certain localities have disregarded the price and destroyed forests and pasture land to make way for planting grain, while others have blindly invested in certain "small cigarette plants," "small wineries," "small textile plants," and so forth, which consume large quantities of raw materials and produce low results. Despite the fact that in relatively small areas this sort of allocation does produce certain results, yet seen from the situation as a whole this is substitution at a low efficiency rate of resources and cannot form the best make-up.

It can be seen from the above-mentioned analysis of the target value of the optimal allocation of resources that this involves extremely complex systems engineering and is a strategic problem with a bearing on the country's long-term development. Allocation of resources is different from current concrete production activities and the development of particular enterprises. It has special features different from others. And it is necessary to handle well several basic relations:

First, correctly handling the trans-generation distribution relations. Advocating a program of allocation of resources extending for a prolonged period of time may affect particular generations of people. Thus, the expenses or production costs of these projects may be shouldered by one generation of people but the benefits wil be enjoyed by the subsequent several generations of people. For example, we may cite such instances as the "Sanbei" forest protection belt engineering project, the forest protection projects on the upper and lower reaches of the Chang Jiang, the transformation engineering project of the "Sanjiang" plain, and so on. Conversely, consumption of existing resources may be enjoyed by the current generation, but later generations may have to suffer the bad consequences and bear the cost of compensation. Therefore, in assessing these projects we should have a general knowledge of the benefit relations between the several generations of people, and this may be aptly called the trans-generation distribution of receipts and welfare. Under general conditions, this implies that for the sake of the exchange for economic, social, ecological long-term, stable and co-ordinated development, it is necessary to sacrifice certain current consumption, but the problem is that the price paid must not be too high. Hence in policymaking by the government this factor must be taken into consideration and macroeconomic adjustment and control measures to realize a suitable trans-generation distribution applied. The main covering principles are: 1) Make certain the methods of rationally bearing the cost of the project, be it from financial appropriations, bank loans, or social raising of funds. 2) Fix a rational interest rate on the investment loan and the taxation policy concerned, and avoid one generation of people bearing too heavy or too centralized a burden; and 3) Effect the equal and fair division of the benefits, and make the investment beneficial to changing and improving the condition of residents of the whole society and enjoyed by the majority of people. For example, when comparing the building of a school and the building of a luxurious guest house, the classes benefited are different, and the former possesses the character of extensive and common enjoyment by society as a whole.

Second, correctly handling relations between locality rationalization and optimal allocation of gross resources. Since localities in our country have vastly different natural, economic, and social conditions, allocation of gross resources must consider their differences and reflect their special features. If we adopt a measure that straitforwardly applies to all, inevitably the enthusiasm of the localities will be damaged and their development will lack vitality. At present, first of all it is necessary to readjust the relations of power and functions between the central government and the local authorities, clarify their respective functions in adjustment and control, and set up an orderly operational mechanism for the allocation of local resources. Second, it is necessary to remove the impediments of "localism" and "regional barriers," and, according to the principle of macroeconomic comparative superiority and microeconomic competitive superiority, set up rules governing the regional flow of resources, and thereby optimizing the structure of regional resources so they can display their strong points. Third, it is necessary to readjust investment, slanting to one side, in accordance with demands, the rational division of work, and coordinated development. We should also enforce the integration of slanting in industry and in localities, perfect the supportive policy and method vis-a-vis backward border areas, and graudally reduce the disparity in the development of the localities.

Third, handling relations between planned control and regulation by market mechanism in the allocation of resources. Objectively, allocation of gross resources should take macroeconomic policymaking and planned regulation as the main body. This is first of all the innate demand of the socialist economy. The socialist economy is a planned commodity economy on the basis of the public ownership system. On the one hand, the public ownership system and unanimity in the basic interests of the various sides of society determine that socialism should consciously seek the coordinated development of the economy, society, and ecology, and centralized manifestation in the planned execution of the allocation of resources. But on the other hand, due to the discrepancy in concrete interests there appear in the course of the allocation of resources, contradictions between the part and the whole, and between the present and the long-term future; the state must, by means of the functions of the macroeconomic adjustment and control mechanism, arouse the enthusiasm and positivism of the localities and enterprises, and at the same time ensure that the structure for allocation of resources is rationalized. Another important reason for adhering principally to macroeconomic adjustment and control in the allocation of resources is the defect in the function of regulation by market mechanism—being partial and short-term in nature and principally guide microeconomic activities—

whereas allocation of gross resources is related to the development and readjustment of the industrial structure, social enterprises, and ecological environment, being of a whole nature in space and long-term nature in time, and subordinate to the problem of macroeconomic operations. Purely relying on the market's spontaneous regulation is inevitably accompanied by the long-term blind movement and enormous waste in resources. Moreover, allocation ofthe gross resources is related to a fixed target of social development while market regulation itself cannot solve the problem of the realization of the planned target. At the same time, market regulation frequently attaches importance to economic activities and cannot correctly reflect the conditions of social progress and ecological development as well as changes in demand. Allocation of gross resources is an action of a comprehensive nature and cannot only rely on market measures for regulation. In microeconomic operations, market regulation drives the enterprises to only seeking an increase in profits, neglecting the economy and rational composition in resources, and even to the extent of being opposite to macroeconomic demand. Hence, only through strengthening the macroeconomic adjustment and control of the gross resources can their effective allocation be realized. Naturally, planned adjustment and control cannot be separated from the market, and the planned allocation of gross resources also needs to be established on the foundation of a thorough analysis of the supply and demand relations in the market and working in accordance with the law of value.

In recent years, the state has delegated a large portion of power to the localities and enterprises, thus forming a pattern of the over-dispersal of the national income. By so doing, in the course of the allocation of gross resources, the state's ability to adjust and control has been weakened greatly and it cannot effectively guide such principal bodies as the localities, enterprises, foreign merchants, and private individuals in the direction of the allocation of resources. At the same time, power delegating is principally carried out through a stimulating mechanism to arouse the enthusiasm and positivism of the localities and enterprises but a restrictive mechanism has not been installed to standardize the acts of investment on the part of the localities and enterprises. This point has been the course of investment inflation, an analogous economic structure, the difficulties in the rational flow of resources, confusion in economic order, and uncoordinated economic social, and ecological development. Hence, it is necessary to strengthen the macroeconomic control of the allocation of resources and adopt various coordination of gross resoruces. Consideration should be given to the following:

1. National land regulation and planning. This is the most basic regulation and planning of the allocation of resources. It is necessary, simultaneously with finding the base number of resources, maximizing the enlargement or enrichment of the scanty resources, and utilizing existing resources efficiently, to open up and make use of hidden resources. In the national land regulation and planning. It is also necessary to solve the problem of the compensatory use of existing resources. We should make use of the "shadow price" theory to determine the rational price of resources. We should link together the supply, use, and effects of resources with the accumulation of the reproduction compensation funds for resources. Following economic development, input into improving the supply conditions of natural resources becomes all the more important. Hence, in national land regulation and planning, we should not only restrict operations of a plundering nature but also encourage the producers to make due investments in land and other natural resources.

2. Economic and social development planning. This is the pivotal sector in the macroeconomic adjustment and control of the allocation of gross resources. The regulatory role of economic and social development planning on the allocation of resources is manifested on two sides: One is through the various forms and measures in regulation and guidance by the adjustment and control mechanism, the demands of the best allocation of gross resources are reflected, and through macroeconomic distribution the wishes of these demands are transformed into concrete arrangements of the resources, thereby facilitating the realization of the target of optimal allocation of gross resources. The other is to guide local governments, enterprises, and individuals to understand the trend and direction of the macroeconomic development and development of the whole situation, and to make the acts of the various main bodies of interests of society to display a benign order and ensure the coordination and unanimity of the operations of the three large systems. Naturally, the regulatory role of the economic and social development plan takes as its precondition the scientific character of the plan and hence it is necessary to improve the system and method of decisionmaking in the planning, and make the planning and allocation policy democratic and scientific. Concurrently with stressing that the plan takes economy as the main point, we cannot overlook the contents of social development and the environmental protection of ecology. there should also be a definite flexibility so that the necessary readjustment may be made according to changes in objective conditions.

Third, industrial policy. the essence of the industrial policy is the structural readjustment policy and is an important adjustment and control mechanism for the optimal allocation of gross resources. The operations of this mechanism play the following roles in the optimal allocation of resources: 1. Through rationalizing the industrial structure, push the balanced operation of the three systems of the economy, society, and ecology. This is because in formulating the industrial policy the most important basis is the target of the prolonged, sustained, and coordinated development of society's three large operational systems. Putting the arrangements for the industrial structure in a concrete form in the economic sector, starts from the long-term development trend of

the three large operational systems, selects and determine the industry and investment direction for a stated period, encourages industry and investment directions which reflect technological progress and possess relatively high economic and social benefits, and restrict and readjust industries and projects which consume resources, produce poor economic effects, or cause serious conflicts between economic, social, and even ecological benefits. 2. Through the industrial organizational policy, change and readjust the existing organizational conditions of production and operation, set up an internal restrictive mechanism on consumption of resources, and speed up the changing, subsitituting, and promoting of our country's economy from a crude and loose operation to intensive operation.

Fourth, regulation by economic levers such as currency, finance, taxation, and prices. Movements of money are like the circulation of blood in the allocation of resources and the currency mechanism has important and restrictive relations on the optimal allocation of gross resources. By means of the adjustment and control of the issuance of banknotes and the scale of credits and loans, it is possible to control the pattern of the allocation of resources. The current enforcement of the guideline of tightening credits and loans in teh course of improvement and rectification has played a decisive role in checking and restricting the pattern of the allocation of resources. Through adjusting and controlling the direction of loans, we can facilitate the readjustment of the structure of allocation of resources, enable funds to be used where truthfully needed, and increase the allocation effects. Adjustment and control of the interest rate of banks can play the role of leading to the rational allocation of resources, and use of preferential loans charging low interest rates can support those major projects which have a bearing on social long-term development but which consume a large amounts of funds, require a long construction time, and are slow in producing effects such as economic development, personnel training, and treatment of the environment projects. The financial mechanism is the nucleus of the adjustment and control of the distribution of the national income and its regulatory role is principally, by means of the budget, to determine the ratio between accumulation and consumption; the general direction of the flow of resources; and whether or not allocation of the gross volume of resources can be balanced. In particular, the budget, in its capacity as the central running board of social operations, can directly adjust and control the direction and scale of the allocation of resources. In addition, finance, through such forms as providing subsidies and loans, supports certain kinds of production which produce good social and ecological effects but which yield meagre profits; helps the development of social welfare and public utilities; assists in the production of such spiritual products such as education, public health, sports, and culture and the services connected therewith; and coordinates relations between the economy, society, and ecology. The taxation mechanism is a sort of regulatory measure of a compulsory nature. It can flexibly regulate the contradictions between the three systems of the economy, society, and ecology. For example, raising the taxation rate on a certain industry or trade can prevent its development in a blind manner while reducing the tax rates on certain departments can stimulate the flow of resources toward these departments. Taxation of grade-differential income formed by differences in resources, that is, the regulatory tax, can help to solve the problem of the over-large income of certain interest bodies caused by differences in the objective conditions and directly regulates the structure of the allocation of resources. Prices also represent an important measure to regulate the allocation of resources. Most importantly it is necessary to gradually readjust the irrational price structure, make prices truly reflect the scarcity resources, and regulate thei4r supply and demand relations, so that, through using prices as lever for market guidance and direction, the whole society can consciously practice economy in resources and seek their best allocation.

Fifth, administrative and legal regulation. Simultaneously with the employment of the economic adjustment and control mechanism in the optimal allocation of resources, we should not leave aside administrative and legal regulation. Administrative regulation is principally to set up a general framework for the allocation of resources through the formulation of administrative ordinances, regulations, and so forth, and to restrain the activities of allocation of resources at the macroeconomic and microeconomic levels. When there appear deviations in the allocation of resources, then the necessary administrative intervention should be enforced. For administrative regulation to be effective, first, the level of administrative policymaking should be enhanced and second, all depends on the power and prestige of the ordinance. However, administrative regulation should not be used wantonly. Law and legislation carry an important significance in the regulation of the allocation of resources. For a long time the legal system has been imperfect in such aspects as protection, opening up, utilization, and compensation of resources, and the conditions have been that there were no laws to dwell upon and their execution has not been rigid. This has caused such phenomena as the wanton opening up of mines, theft and pillaging of forestry, electric power, and petroleum resources, and destruction of opening up measures undertaken. Therefore, we must speedily set up and perfect legislation relative to the allocation of gross resources, apply legalized and standardized regulatory measures to activities in the allocation and use of resources, and thus provide legal protection to the coordinated development of the economic, social, and ecological environments.

Hainan Promotes Scientific Environmental Research

HK1311060990 Haikou Hainan Provincial Service in Mandarin 2300 GMT 8 Nov 90

[Text] This province's environmental monitoring work and scientific research on the environment has made

considerable progress in the Seventh Five-Year Plan period, especially in the period following the establishment of this province.

At present, this province's environmental monitoring network is roughly in shape, and the scientific research on the environment has achieved gratifying results.

We started the environmental monitoring work during the Sixth Five-Year Plan period. It developed comparatively rapidly in the Seventh Five-Year Plan period. At present, a total of 203 persons are engaged in the environmental monitoring, 4,000 square meters of houses for that purpose have been built, and 339 conventional monitoring instruments and three sets of automatic instruments for monitoring the atmosphere installed, initially constituting a monitoring network with the provincial Environmental Monitoring Center as its nucleus.

With the vigorous support given by the leadership at all levels and through the strenuous efforts by scientific and technological workers, monitoring means, items, range, and frequencies have increased and expanded year by year since the establishment of the province.

The provincial monitoring center is now in a position to monitor surface water, ground water, acid rain, dust fall, automobiles' exhaust fumes, grain, soil, radioactivity, marine life, and so on.

In the Seventh Five-Year Plan period, this province has also made gratifying achievements in scientific research on the environment. We have accomplished over 20 research projects, such as appraisal of the quality of Hainan Island's natural environment, appraisal of the effect of economic development on Hainan Island's natural environment, macroeconomic forecast and countermeasures, the forecast for the environment in 2000, the environmental program for the Hainan Island economic development zone, construction projects and their effect on local environment, and so on. The research institutes on the island have also published a number of quality scientific theses on the environment and some of the research results have been applied to economic and other fields playing an active role in promoting economic construction, arranging the industries, laying out the urban district, and protecting natural resources and the ecological environment.

Shenyang Develops Dust Absorption, Desulphurization Gear

OW1311122090 Beijing XINHUA in English 0847 GMT 13 Nov 90

[Text] Shenyang, November 13 (XINHUA)—China has succeeded in developing dust absorption and desulphurization equipment, a senior engineer announced at a press conference here today.

The dust and sulfur dioxide from burning coal, which accounts for more than 80 percent of China's industrial and civilian fuel, are the two leading pollutants.

Liu Hanzhong, senior engineer of the Shenyang Environmental Science Institute, said that the equipment can be adapted to various boilers and industrial kilns. It can recover 97-99 percent of dust, including 70 percent of the particles in the 10 micron range, and 60-90 percent of the sulfur.

The equipment has also helped reduce corrosion and wear of boilers and kilns and helps to recycle 95 percent of the cooling water.

The senior engineer said that the cost for handling one ton of coal is only 1.2 U.S. dollars, one fourth of that of similar equipment made abroad.

Officials at the Shenyang Environmental Protection Bureau said that this industrial city consumes 10 million tons of coal each year, and that its concentration of sulfur dioxide ranks second in the world. The successful development of the new equipment will greatly benefit the local citizens.

Nuclear Fusion Technology Applied in Pollution Control

OW1511121890 Beijing XINHUA in English 0746 GMT 15 Nov 90

[Text] Beijing, November 15 (XINHUA)—China has succeeded in using the technology of nuclear fusion to purify waste water produced by the paper-making industry, a worldwide problem that has puzzled scientists for years.

With this method, scientists at the Southwest China Physics Research Institute turned the organic matter from waste water into flammable gas, which was then recovered, while inorganic matter turned into solid powder mainly containing alkali and carbon, which can be reused in paper making.

Pollution-Free Chemical Fertilizer Enterprise Built

OW1911075290 Beijing XINHUA in English 0704 GMT 19 Nov 90

[Text] Jinan, November 19 (XINHUA)—A complete new equipment has been put into operation in the North Shandong Chemical Plant in Jinan City, capital of east China's Shandong Province, making the plant pollution free.

The equipment can produce phosphamidon, an effective compound chemical fertilizer used to increase crop output, sulfuric acid and cement successively. The annual output is expected to reach 30,000, 40,000 and 60,000 tons, respectively.

During the production process, the waste residue, waste gas and waste water are all recycled.

The director of the plant, Feng Yisheng, and his fellow technicans developed the equipment, which is the first of its kind in China, after years of research and experiment.

A large phosphamidon enterprise in the Soviet Union held talks with the plant to introduce the processing technique.

INTER-ASIAN

Pacific Nations Want Neighbors' Aid in Energy Research

BK1411161790 Hong Kong AFP in English 1546 GMT 14 Nov 90

[By Davendra Sharma]

[Text] Suva, Nov 14 (AFP)—Officials attending the Pacific 2000 Conference on energy here called on their rich neighbours Wednesday to research new renewable energy sources for them following the rise in oil prices as a result of the Gulf crisis.

Western Samoan Finance Minister Tuilaepa Sailele told the Conference on Marine Energy and Mineral Resources that rich Pacific nations such as Japan and the United States should develop renewable energy systems for poor island states.

"The richer nations along the Pacific Rim should finance the research and development of renewable energy systems for the Pacific Islands," he said, but warned of possible dangers that could accompany the help from rich countries.

"The islands are swimming in a sea of resources, but there are also sharks in that water," he said. "Among those have been disreputable consultants who have cost island governments millions of dollars."

The conference, hosted by the U.S.-backed Pacific Islands Association and the Foundation for the Peoples of the South Pacific, discussed alternative energy sources and prospects for mining the Pacific seabed.

Fiji's Trade and Commerce Minister Berenado Vunibobo said the Gulf crisis gave island states no choice but to review their energy sources.

"How much dependence on foreign oil can the islands tolerate?" He asked.

Officials from the Cook Islands said it was up to the Pacific nations to develop their own energy resources.

"It is not in the interests of industrialised nations to develop renewable energy since they have other options," said Cook Islands Deputy Premier Inatio Akaruru. "It is entirely up to us to develop the projects that are necessary for our own energy requirements."

Officials from Papua New Guinea, the Solomon Islands, Tonga and Nauru also attended the conference.

Ronald Hays, former commander-in-chief of U.S Pacific Forces and president of the Hawaii-based Pacific International Center for High Technology Research, said the island states "could kick the oil habit if we really want to.

"The islands have oceans with unlimited energy, abundant sunshine, a year-round biomass growing, steady tradewinds and sources of geothermal energy," he said, adding that ocean thermo-energy was another potential power source.

Biomass involves transforming the energy found in plants and garbage, geothermal energy is using the earth's heat, and ocean thermo-energy involves using the temperature differential between the ocean's surface and depths to drive electrical turbines.

Details of aid packages promised by U.S. President George Bush at the recent Pacific summit in Honolulu were expected to be unveiled Thursday, as was a new UN report on the disastrous effects of driftnet fishing.

Mr. Bush assured Pacific Island leaders at the summit earlier this week that he would take regional concerns "seriously, and look forward to future consultations."

In a letter to Fiji's Prime Minister Ratu Sir Kamisese Mara, Mr. Bush said he had instructed his ambassador here to "provide further details at the summit" and that he would be "forwarding scientific data on climatic changes."

Dam Development Projects in Laos, Thailand Contrasted

BK2011051990 Bangkok THE NATION in English 20 Nov 90 p A8

[Report by Ann Danaiya Usher: "Choosing Sides in Dam Politics"]

[Text] Foreign Minister Subin Pinkhayan returned yesterday from a two-day visit to Vientiane during which he conducted high-level negotiations about construction of the Nam Thoen 2 Hydroelectric Dam project.

Subin announced to his Laotian counterparts that Thailand is willing to buy more electricity from Laos in order to "help" Laos gain foreign currency, and that a dam across the Nam Thoen River appears to be the "most feasible" for Thailand.

Notwithstanding the ongoing Thai-Lao rhetoric about brotherhood, bilateral cooperation and turning the war field into the marketplace, Subin's reasons for wanting to build the Nam Thoen 2 inside Laos are not difficult to understand.

He himself has commented to the Thai press that "you can't build dams in this country any more".

Thailand's industrial expansion and economic growth over the next few decades are expected to triple energy needs to more than 20,000 megawatts. The Nam Thoen 2 Dam would have a generating capacity of 600 megawatts, the bulk of which would be exported into Thailand's energy grid.

Voracious energy consumption, the absence of comprehensive energy conservation policies and continued

uncertainty about world oil prices make hydropower an obvious alternative for development planners.

30 Years of Dams

But widespread deforestation and technical difficulties have seriously curbed the efficiency of Thailand's eight existing big dams. A glance at three decades of dam politics in this country helps to explain Subin's enthusiasm for Nam Thoen 2.

The reservoir of the country's first hydropower dam, the three decade-old Phumiphon, dropped to 41 percent of projected volume in the 1987 dry season and rose to only 55 percent at the peak of the rains that year.

The reservoir of the Chiew Lan Dam—the country's newest hydropower dam, completed four years ago—filled to only 53 percent during the 1987 rainy season and has remained an average 20 metres lower than its projected water level ever since.

Indeed, in early 1988 widespread public opposition to the 580 megawatt Nam Choan Dam in Kanchanaburi Province forced the cancellation of the decade-old hydropower scheme.

Since then, the Electricity Generating Authority of Thailand (EGAT) and the Royal Irrigation Department (RID) have struggled to push through at least four other dams—but so far with limited success.

—Last spring, some 6,000 villagers demonstrated against the proposal to build the Kaeng Sua Ten Dam in Phayao Province for fear that they would be resettled from the Mae Yom River valley. Confusion increased when it became evident that irrigation officials had vastly under-represented the number of villages that lie within the proposed flood zone.

A massive water diversion project is in the works to carry water from the mouth of the Kok River southwards through a series of dams and canals in order to save the ailing Phumiphon and Sirikit Dams.

—Conservationists strongly criticized another bid to build the Haew Narok Dam, which would inundate the heart of Thailand's oldest national park, Khao Yai. Though several politicians, including Deputy Prime Minister Sanan Kachonprasat, insist that "only grassland" remains in the reservoir area, aerial photographs of lush evergreen forest indicate the falsity of such claims.

In fact, a demonstration in favour of the project is planned in Nakhon Nayok today, although provincial sources claim that the villagers have been hired for the event by local politicians.

While the future of these two schemes remains uncertain, the Pak Mun and Kaeng Krung Dam projects are ongoing projects for which EGAT is currently requesting World Bank funding support.

—Pak Mun has received Cabinet approval, though opposition to the dam among environmentalists and villagers in Ubon Ratchathani Province remains strong. EGAT has argued that less than 100 families need be resettled to make way for the project, but the agency has not yet made public detailed topographical maps of the flood zone.

—The 80-megawatt Kaeng Krung Dam project in Surat Thani Province continues to be debated. Environmental critics point out that one of Thailand's last intact patches of rain forest, which shelters a wide variety of wildlife, would be lost, while villagers are already suffering from the release of polluted water from the reservoir of the nearby Chiew Larn Dam, and they fear a second dam could worsen their situation.

Proponents of Kaeng Krung, on the other hand, stress the country's need for energy, and count the timber to be cut from the reservoir area as a benefit of the project.

Environmental concern about deforestation and the ecological and social disruption caused by big dams has brought public tolerance on the Thai side of the Mekong near to saturation point.

Too Political?

The World Bank's chief of mission for Thailand, Philippe Annez, commented in an interview (prior to EGAT's most recent request for support for Kaeng Krung and Pak Mun) that dams in Thailand have become "too political" for the Bank to touch.

The head of the Interim Mekong Committee, Chuck Lankester has also acknowledged that the main obstacle to building dams in Thailand is resettlement—that is, the unwillingness of villagers to move from their river valley homes to land that is often far less fertile.

Noting the lack of attention to environmental and social issues associated with dam-building in the past, Lankester insists that if Cambodia rejoins the Committee and a major dam across the Mekong mainstream is finally agreed upon by the four member countries, fair compensation and counselling will be provided for displaced villagers.

Still, the highest priority mainstream project—the Low Pa Mong near Nong Khai—would necessitate the eviction of some 30,000 people on the Thai side of the river. Though Lankester has said many villagers would probably prefer to move if offered sufficient incentives, the reaction of Northeasterners to the Pak Mun project suggests otherwise. Even if Cambodia were to send a representative to the Mekong Secretariat, thus ending 15 years of deadlock, tributary projects in Lao territory remain politically attractive from the perspective of Thai planners as a way around chronic controversies in Thailand. Public debate is still impossible in Laos as the

media is highly regulated, there are no non-governmental pressure groups, and decisionmakers remain intolerant of open criticism of government policy.

Thus, unlike Thailand where the government has—albeit often with great reluctance—tolerated relatively lively public discussion, any decision by the government of Laos would presumably go unquestioned.

If would be wrong, however, to conclude that resettlement is the only issue that has blocked construction of various Thai dam projects over the last few years.

Though a few thousand Karen people were upset about the prospect of being displaced by the Nam Chon Dam Reservoir, it was the unquantified values of the forest—its role in regulating local and global water cycles, the survival of wildlife and the rich genetic resources—that figured most in molding public opinion in 1988 and forcing the government to scrap the plan.

Nam Chon makes a neat comparison with Nam Thoen 2, as the generating capacity, the number of displaced people and, from what is known so far about the forests of the Nakai Plateau, the wildlife that would be destroyed in both cases are uncannily similar.

This similarity extends even to the financial backing.

The World Bank supported Nam Chon until 1987, when it suddenly withdrew, partly in response to growing opposition to the project in Thailand, and to increasing criticism abroad of environmental damage caused by Bank lending.

Today the Bank is the major proponent of Nam Thoen 2 in Laos, having hired an Australian consultant to conduct the feasibility study and organized a meeting of potential donors for the US$500 million (Bt12.5 billion) project. Germany, Japan, the Asian Development Bank and the World Bank have expressed interest in disbursing loans if the project is approved.

While the international community is up in arms about tropical deforestation and species extinction, the banks and Western donors are quietly going about their business as usual inside Laos.

Like Subin, who has referred to dams inside Laos as "Sleeping Beauties" waiting for their "Prince Charming", they appear to have recognized the political advantages of Nam Thoen 2.

FRENCH POLYNESIA

Greenpeace Activists Not Allowed Ashore in Papeete

BK2711034590 Hong Kong AFP in English 0311 GMT 27 Nov 90

[Text] Sydney, Nov 27 (AFP)—France has enforced a five-year-old ban preventing the captain and a deckhand of the Rainbow Warrior from going ashore in Papeete, capital of French Polynesia, Greenpeace International said Tuesday.

Captain Peter Willcox and deckhand Sue Ware say they were refused visas to go ashore because of a prohibition decree issued against them in 1985 when they were members of the crew of the Greenpeace yacht Vega.

The Vega, which sailed to Mururoa to protest the bombing of the first Rainbow Warrior in Auckland harbour, was arrested crossing the 12 nautical mile limit into Mururoa and its crew was deported.

Captain Willcox, from the U.S. State of Connecticut, and Ms. Ware, a New Zealander, were told the ban was being reimposed on Tuesday (Monday, Papeete time) after the Rainbow Warrior docked for a four-day stop.

The rest of the crew, which will number 30 before the departure on Friday, were unaffected by the ban.

Greenpeace said the ship is en route to the French nuclear testing site at Mururoa to assess the environmental consequences of more than 120 underground nuclear blasts on the coral atoll.

Greenpeace spokeswoman Stephanie Mills told AFP by telephone from the ship: "It was just impoliteness by the French.

"There was absolutely no reason why they had to enforce this ban after five years. It causes some inconvenience to the ship that the captain and Sue Ware have to remain aboard while the rest of the crew can go ashore," she said.

"But it certainly isn't going to deter us from our aim to sail to Mururoa to find out what the environmental consequences of the French nuclear testing have been there," Ms. Mills said.

Speaking from the ship, Captain Willcox said Greenpeace would be seeking legal advice about overturning the ban.

"Neither Sue nor I regret our actions in 1985," he said. "These actions will not stop us. Greenpeace will continue to protest at Mururoa as long as nuclear testing continues in French Polynesia."

Another Greenpeace campaigner on board, Martin Gotje, was deported from French Polynesia after a protest at Mururoa in 1973, but has not been banned from entering Papeete this time.

JAPAN

Spokesman Says Dolphins Commit 'Mass Suicide'

OW0611121290 Tokyo KYODO in English 1006 GMT 6 Nov 90

[Text] Tokyo, Nov. 6 KYODO—Some 582 dolphins reportedly slaughtered by Japanese fishermen over the

weekend in fact committed "mass suicide," a Foreign Ministry spokesman said Tuesday.

Taizo Watanabe told foreign correspondents that the fishermen of Miiraku, a town on Fukue Island in Nagasaki Prefecture, made "utmost efforts" to drive the herd of large-bodied Risso's dolphins away from the island's shoreline. "But the dolphins came back and they just landed on the shore and died," Watanabe said. "There is a possibility they could have suffered from some unknown disease and lost their sense of direction."

The spokesman's version of the incident was at odds with local officials' accounts that the Fukue fishermen made a conscious attempt to drive the dolphins into the bay so they could be slaughtered for their meat and to eliminate competition for fish. "It is the natural right of human beings to catch what inflicts damage to us," Miiraku Mayor Yaoto Tatemoto told reporters Monday. The incident has been given worldwide publicity similar to when Japanese fishermen slaughtered up to a thousand dolphins in a bay on Iki Island in Nagasaki Prefecture in 1978.

Watanabe said a group of boats on the way back from a fishing excursion early Friday evening encountered a large school of dolphins and tried to drive them away from a Fukue Island bay. "But the dolphins could not be turned away," he said. The spokesman said the next morning hundreds of dolphins were found either beached on the shore or swimming in the bay. He said attempts to expel those still alive from the bay were to no avail. A local police spokesman said Monday the dolphins were chased onto the beach and clubbed to death.

Watanabe said those fishermen who wanted to cut up the dolphins for their meat were allowed to do so, while the excess dolphins were buried.

Fisheries Agency records show Japanese fishermen killed 29,048 dall porpoises for food in 1989, almost three times the 10,378 killed in 1985. Risso's dolphin meat is less popular.

Watanabe suggested that the dolphins' alleged beaching could have been caused by a malfunctioning of their ability to detect ultrasonic waves, possibly due to an inner ear infection. The spokesman said that while dolphins are a "nuisance" to Japanese fishermen, they are basically viewed as "lovable animals." He said there would be "no problem" if sea mammals approached the shoreline "just for play, to swim around and go out."

Dioxin Pollution Reported in Fish in Osaka Bay

OW2611143890 Tokyo KYODO in English 1332 GMT 26 Nov 90

[Text] Tokyo, Nov. 26 KYODO—Limited quantities of high toxicity dioxin have been detected in fish in Osaka Bay for the first time in three years, indicating increasing pollution of sea and river beds by the chemical, an Environment Agency report warned on Monday.

The pollution is not so serious, however, as to pose a danger to human health, the report said, adding that the agency would closely monitor the water environment for signs of increasing pollution.

The report, based on the results of an agency fact-finding survey conducted in 1989, was submitted to a panel of experts on chemical substances of the Central Council for Environmental Pollution Control.

The Health and Welfare Ministry also plans to independently formulate guidelines next month for restricting the discharge of dioxin at its sources, such as garbage incinerators and pulp mills.

The Environment Agency survey, the fifth since 1985, monitored the intensity of 28 strains of dioxin in fish and shellfish in 11 rivers, three lakes and swamps, and 11 sea areas and harbors nationwide.

The findings revealed that young sea bass sampled in Osaka Bay were contaminated with between 1 and 3 ppt (one-millionth of ppm) of tetrachloride dioxin (TCDD), the largest amount detected in Osaka and Tokyo Bays since 1986.

Between 1 and 8 ppt of tetrachloride dybenzofran (tcdf), which is one-tenth of TCDD in toxicity, was found in fish samples collected in the Mogami and Shinano Rivers in north Japan, the Yodo River in Osaka and Osaka Bay, Ise Bay in Mie Prefecture, and other waterfronts around the country, the survey said.

Seabeds in Tokyo and Osaka Bays also revealed 2 to 4 ppt of TCDD, with 1 to 13 ppt of quintachloride dibenzofluorate dioxin found in Kasumigaura, Biwa and Suwa Lakes, in Ibaraki, Shiga and Nagano Prefectures respectively, as well as Osaka Bay, it said.

In terms of the U.S. Environment Protection Agency standards, the overall density of dioxin in Osaka bay was 24 ppt and that in fish was 5 ppt.

Both toxic levels were about one-tenth of the interim safety guideline set by the Health and Welfare Ministry in 1984, the report said.

TCDD, used in a defoliant agent sprayed by the U.S. military in the Vietnam War, is the most deadly of dioxin strains, causing a high risk of cancer and deformity.

NORTH KOREA

New Nuclear Power Plant Planned in Sinpo

SK2411091290 Moscow International Service in Korean 0900 GMT 22 Nov 90

[From the "Primorskiy Kray" program]

[Text] The paper VLADIVOSTOK published a piece of information that drew considerable attention from its readers. Our radio listeners must be interested in this

information. So we will pass on to you the brief gist of an article entitled "Is a Second Chernobyl in Store?" This article has a subtitle "A Survey Has Been Undertaken in North Korea for the Construction of a Nuclear Power Plant." The article says:

The editorial department of the paper VLADIVOSTOK has obtained a document sent near the end of October to Gorbachev, Soviet president; Ryzhkov, chairman of the Presidium of the Council of Ministers of the Soviet Union; and (Shinayev), chairman of the Presidium of the Council of Ministers of the Russian Soviet Federated Socialist Republic. The editorial department of this paper, in publishing the gist of this document, is also planning to disclose the official reply to it.

In 1990, the Soviet (Atomas) began a survey for the construction of an nuclear power plant in the district of the port of Sinpo in the DPRK. This district is located in a zone where earthquakes are active and where severe atmospheric processes occur. In the winter, atmospheric pressure is low, and in summer a typhoon with enormous destructive power blows here. Therefore, if even a small quantity of radioactive material is released as a result of some trouble, the entire area of the Far East can be contaminated.

As is known, the construction of a power plant with cooling by direct current is planned, and this means that water will be released in the eastern Korean Bay after the reactors have cooled. This water is warm and contains less oxygen. Releasing water exceeding the temperature of the sea water and a layer of sea water with less oxygen could mean an ecological disaster, destroying huge quantities of fish.

According to the remarks by engineers from (?warm winter) research institutes, since this work is being conducted in absolute secrecy, (Atomas) has not yet informed those who are conducting the survey of the technical data, namely, the temperature and quantity of the water to be released. All the maps concerning the physical features in the locality are also being kept secret. Therefore, theoretical research work is being conducted blindly. There is no forecast on the consequences that could result from seismological effects on such facilities as a nuclear power plant.

We suspect that (Atomas) is conducting all its new energy projects secretly without the knowledge of residents in the area after it had experienced fierce resistance from public opinion which caused the suspension of the construction of the (Primorskaya) Nuclear Power Plant and the (Dalemostoshyaya) Nuclear Power Plant. We demand that the aforesaid points be clarified in detail and that we be given an authoritative appraisal of whether the new site for the planned North Korean nuclear power plant to be built with Soviet facilities is appropriate or not.

It should not be tolerated that the construction of a nuclear power plant, which will have a direct bearing on the safety of the residents of the far eastern region and the residents of the country as a whole, is conducted in secrecy without an extensive and in-depth survey.

According to the opinion of experts, four to five years are required to conduct this survey. We request that we be informed of the decision when it is made.

This document is signed by (Galeriy), deputy to the (?Tallinn), and (Jeshiatov), Soviet people's deputy and member of the USSR Supreme Soviet Committee for Ecology and the Rational Use of Natural Resources.

Because we have aired the above article, we will give you a report on what probably affects the piece of information we referred to in that article: On 13 November, there was an earthquake in the waters in the northern area of the Sea of Japan. The earthquake of three to four points was felt at Khabarovsk, the northern section of the Primorskiy Kray, (Ladalnerikensk), and [word indistinct] of Luchegorsk. There were two earthquakes in a few seconds. Furniture and floors were shaken in some homes. However, no casualties or destruction of buildings occurred.

SOUTH KOREA

Environment Ministry Accused of Altering Pollution Report

SK2811033590 Seoul THE KOREA TIMES in English 28 Nov 90 p 3

[Text] The Environment Ministry is under fire for allegedly dropping from a monthly pollution announcement the fact that heavy metals including chrome, arsenic and cadmium have been detected in the Han River and the Naktong River.

The heavy metal pollution data was contained in a report provided by the ministry to Rep. Yi Chol-yong of the opposition Party for Peace and Democracy.

The ministry said 0.019-0.025 ppm of chrome was detected at three spots on the Naktong River, Namji, Mulgum and Kupo, in December, a level lower than the official limit of 0.05 ppm.

Meanwhile, 0.016-0.019 ppm of arsenic was detected at Yongdungpo, Kayang and Haengju on the Han River in July, the ministry said. The official limit of arsenic is 0.05 ppm.

Government To Turn Nuclear Protest Site Into Tourist Complex

SK2511012590 Seoul THE KOREA TIMES in English 25 Nov 90 p 3

[Text] The government will develop an international tourist complex on the Anmyon Island off the western coast of the peninsula with a total of 173.7 billion won (roughly $248 million) by 2001.

The island belonging administratively to Taean-gun, Chungchong-namdo, was recently the site of violent demonstrations against the government's plan to construct nuclear waste disposal facilities there.

The Transportation Ministry said yesterday that it would make a feasibility survey for development of the international sightseeing complex on the island on the Yellow Sea within the year.

It is seeking a permit from the Construction Ministry for conversion of the related land into a tourist site in accordance with the National Land Control and Utilization Law.

The international tourist complex is planned on a lot of 3,210 square kilometers (about 970,000 pyong) in the areas of Sungon and Chungjang, approximately 15 kilometers north of the site where the Science and Technology Ministry made a futile bid to build the nuclear waste disposal facilities.

A senior Transportation Ministry official said that the international sightseeing complex would be developed in six blocs.

Under the development scheme, the ministry will construct a marina center, two maritime sightseeing centers and 16 mammoth lodging facilities, including one hotel and eight villas, at the complex.

Other convenience and service facilities to be constructed at the international tourist complex will include an 18-hole golf link, sports and leisure centers and recreation facilities for aged people.

The international sightseeing complex, when completed, will be very popular with holidayers, the ministry official expected.

The island is a two-hour ride from Seoul.

LAOS

Development Plans, Environmental Constraints Contrasted

BK2011045790 Bangkok THE NATION in English 19 Nov 90 p A8

[Report by Ann Danaiya Usher: "Whither the Landlocked Lao PDR?"]

[Text] As the 15-year anniversary of the Lao People's Democratic Republic approaches, Thailand's small landocked neighbour appears to be gearing up for a massive transformation.

After more than a decade of isolation from the Western capitalist world, the government of Laos is reducing its own role in the economic sphere as part of the country's cautious return to the global marketplace.

Most striking in the recent change of political climate is the flip-flop in Thai-Lao relations. Over the last two years, the two countries have gone from being ideological and military adversaries to "siblings" in search of bilateral projects to cement this rediscovered kinship.

Foreign Minister Subin Pinkhayan's visit to Vientiane today to negotiate terms for the construction of the Nam Thoen 2 Hydroelectric Dam project is part of a recent swell of cross-border visits on both sides of the Mekong River.

Unharnessed economic growth and wanton plunder of its own resources provide Thailand with ample reason to cozy up to Laos—a country rich in natural bounty and in desparate need of cash.

At US$600 million (Bt15 billion), Laos' gross national product is one-seventy-fifth of Thailand's while its total population is less than that of Bangkok.

Adult literacy remains at 33 percent, life expectancy at 49 years, and 37 percent of children under five are undernourished in Laos, according to UN Development Programme figures.

Laos, a country that has been compared to a poor man sitting on a gold mine, wants to develop. But how?

How does a government that has followed a strictly state-regulated Soviet model of development now put its natural resources up for sale on the world market without being swallowed up by the myriad of Western powers vying for a piece of the Lao pie?

From its own vastly superior economic position, Thailand has so far been able to bend the terms of trade to its favour. A monopoly on transportation of goods from the border to Bangkok has, for example, forced down the price of Lao logs to less than half the world market price.

But Thailand is not alone.

Some Laotians are cynical about the orgy of experts, advisors and development aid agencies that have poured into the country from all directions: United nations and World bank projects; the Australian bridge; Swedish forestry advice; German and Japanese interest in financing Nam Thoen 2; American aid for poppy replacement; huge Chinese investment; thousands of Soviet advisors throughout the land; and all manner of Thai businesses looking for opportunities.

"We know that each one has its own interests even though they all say they've come here to help us, but what can we do? We don't have the expertise or the cash ourselves, so we have no choice but to accept their help," commented a Lao Government official.

Amid such comings and goings, signs of change are rife in the streets of Vientiane.

Private shops, restaurants and hotels have sprung up throughout the capital, while the Morning Market carries

not only Soviet-made goods, but also as full a selection of Japanese brand name fridges, rice cookers and fans as a Bangkok department store.

Where once a strictly-enforced curfew emptied the town by 10 pm each night, there are today night clubs, discotheques and even, it is rumoured, brothels in the city frequented mostly by visiting Thai businessmen.

While Laos clearly needs external input to boost its sagging economy, Thailand in a sense also "needs" Laos.

The January 1989 logging ban was a response to public outcry over years of unmitigated forest destruction. Multifaceted ecological crisis and a growing environmental lobby are making development projects like hydroelectric dams and large-scale industrial tree farms increasingly difficult to justify in this country.

From the perspective of Thai develoment planners, Laos has the makings of a perfect hinterland, with morce than 40 percent forest cover (according to somewhat outdated official figures), and mountains over some 80 percent of its surface.

The country's economic need and low poulation density, coupled with the absence of press freedom and non-governmental bodies, form the ideal conditions for Thai government and businesses to export the sort of projects that are environmentally and politically no longer acceptable here.

Laos' dilemma in opening up is compounded by the unprecedented events unfolding in the Eastern European countries and the Soviet Union.

But unlike the Eastern bloc, where sweeping changes have occured largely as a result of mass demonstrations, open public criticism in Laos has so far not been tolerated.

The sudden arrests last month of the Vice Minister of Science and Technology and two other government critics for "subversive" activities were a sobre reminder of the state's reluctance to move too quickly toward Western style freedoms.

Still, Laos' shift away from "pure" socialism began before Solidarity's rise to power or the revolution in Hungary or the collapse of the Berlin Wall.

The so-called New Economic Mechanism was announced in 1986, heralding the introduction of a management system relying more on economic incentives than state control, abolition of regulated prices and conversion of public institutions into financially autonomous enterprises.

This trend has continued with the more recent involvement of the World Bank, which has advised Laos on the Third Five-year Plan for 1991 to 1996, and placed conditions concerning structural adjustment on future Bank loans to the country.

The plan, along with Laos' first constitution which will pave the way for basic legal reform, are to be unveiled at the upcoming Party Congress early next year.

Whatever the details of these two historic doocuments, however, the inescapable fact remains that logs, dams and "degraded" land for commercial tree farms are virtually all Laos has of value for the world market.

Forest products and hydroelectricity have been mainstays of the Lao economy, whith log and processed wood exports contributing 36 percent (US$20 million or Bt500 million) to the country's balance of payments, and electricity, 19 percent (US$11 million or Bt275 million) in 1988.

Environmentalists are cringing at the World Bank's advice to Laos, the thrust of which is to boost the efficiency of the forestry industry to bring in cash to pay for consumer goods and basic development.

And as the country has no access to the sea, such development will be difficult, if not impossible, without Thailand's cooperation—both as a potential market for Lao goods and a trading window onto the rest of the world.

But unlike Burma, which is selling off its forest in exchange for political favours from Thailand, Vientiane has shown comparative reluctance to give away its strategic natural resources so easily. In the case of forestry development, the government of Laos has attempted to limit log exports to Thailand on environmental protection grounds, against the better advice of the Bank and other Western advisors. But more than ecological survival, political independence appears to be the fundamental concern of Lao decisionmakers formulating natural resource policy in this moment of fluid change.

Indeed, Laos has had two centuries of experience of being somebody else's "hinterland".

Two hundred and eleven years ago, Laos became a colony of Thailand after a war whose victory was symbollized by the destruction of Vientiane's Wat Phra Kaeo and the transportation of the Emerald Buddha to Bangkok.

Beginning in 1983, the French controlled Laos for six decades, except for a brief period during the Second World War when the Japanese took over the country. In 1954, Laos became an independent nation and the following year American troops arrived. The United State left two decades later with the victory of the Pahet Lao.

Laotians do not speak openly these days of "Soviet colonization", though resentment toward the strong Vietnamese presence is evident.

Today analysts in Vientiane are concentrating on a slightly different question: Will the inevitable economic

dependence on Thailand brought on by so much structural adjustment serve simply to phase out Soviet influence and bring the cycle of colonization back full circle?

TAIWAN

Environmental Head Predicts Cleaner Air Within Five Years

OW2111033390 Taipei CNA in English 0246 GMT 21 Nov 90

[Text] Taipei, Nov. 21 (CNA)—The quality of air in the Republic of China will be greatly improved in five years and will meet the standards of industrialized countries by the year 2000, Eugene Chien, director-general of the Environmental Protection Administration said.

Chien spoke while participating in a roundtable discussion in Kaohsiung on "how to create an environmental miracle" Sunday.

The ranking environmental affairs official urged the public to work with the government to better their living conditions.

He stressed that laws and education are important weapons in the fight against air pollution.

Chien noted that 12 of Taiwan's 21 cities and counties have set up environmental protection agencies in the past three years, and the other nine are expected to follow suit next year. Regulations on clean air are also being revised, he added.

THAILAND

Chanthaburi Mangrove Forests Threatened by Prawn Farming

91WN0107A Bangkok THE NATION in English 3 Oct 90 p C1

[Report by Malee Traisawasdichai]

[Excerpts] In years gone by, the eastern province of Chantaburi was known as the location of the most fertile mangrove forests in the country. Today those forests are pitiful remnants of their former glory, victim to the uncontrolled expansion of prawn farming in the province's coastal areas.

The Wen River National Forest Reserve in Khlung district provides a vivid example of the destruction caused by the farms: The Royal Forestry Department's regional office in Sri Racha has released statistics which show that, since 1985, over 47,000 rai (75 km^2) of the forest has been encroached by prawn farms.

In 1986, the Sahavanakit Company, holder of the only logging concession in the Wen River forest, cancelled the contract after a company survey found that the area in question had been stripped of trees.

Now, say officials of the Khlung District Forest Management Unit, which is responsible for the forest reserve, the area of fertile mangroves has shrunk to just 10 percent of its original extent.

The forest reserve covers a total area of 119,735 rai (191.5 km^2), making it the largest mangrove reserve in Chantaburi. THe unit, in addition to protecting the mangroves from encroachers, is also responsible for cultivating existing trees and planting new seedlings in an effort to reverse the destruction.

But it is an uphill struggle.

Before the prawn farming boom, small villages lined the banks of the Wen River, their inhabitants making a living through fishing and producing charcoal from the surrounding mangrove forests.

The advent of prawn farming has changed all that. In the last three years, the fishermen have abandoned their nets in favour of pools for Black Tiger prawns. There are now at least 474 prawn farming operations in the area; the locals mostly run small farms covering one or two rai, those owned by outside entrepreneurs sprawl over 100 to 700 rai farms.

"The residents think that the prawn farming business is the easiest way to become rich because each rai can earn them from Bt40,000 to Bt50,000 a year. This has led to the massive increase in encroachment," said Chumpol Vetchaphan, chief of the Khlung Forest Management Unit.

The problem with prawn farming is that, after a few years, breeding pools deteriorate to a point where it becomes essential to move to a new site, leading to further encroachment.

"Land deterioration from prawn farming is similar to the slash and burn rice cultivation of the northern hilltribe people," said Chumpol.

"It not only rapidly destroys the forest, but also makes the land decay."

But, for the villagers, the lure of short-term profits pushes thoughts of the long-term benefits of conservation into second place. For those who have not set up their own prawn farms, there is good money to be made selling land to outsiders—despite the fact that the land in question lies inside a Forest Reserve.

A rai of land currently fetches between Bt20-30,000.

"There are many areas that the local residents have marked as their own land, and which are ready to be sold in the near future," said Chumpol.

Forestry officials are fighting a losing battle: Using tractors, and working under cover of darkness, a plot of land can be cleared of mangroves almost overnight. Not even the trees' roots are left to give any indication of what once grew on the land.

"The morning after, we may not be able to distinguish what is old or new prawn farm because all farms look the same," he said.

The encroachers know that speed is of the essence, even though there is little danger of any action by the forestry officials.

"It's our weak point. The encroachers know that we have to compromise with the residents," Chumpol revealed. Prosecuting one case would mean prosecuting every case and the unit is neither prepared to, nor able, to do this.

Arrests are hampered by the lack of physical evidence and the unit is further hindered by insufficient manpower and equipment. It presently has one small long-tailed boat and just three members.

"Frequently, when we have got word that encroachers are clearing land, we can't get to the spot in time because our boat is very old and has a poor engine. We have to waste time renting a boat from nearby residents. And often when we reach the spot the encroachers have already gone."

In the rare event of an arrest being made, those arrested usually claim that they are just visitors or passers-by. And, in view of the large amounts of money involved in prawn farming, it can also be risky for officials to push a case too vigorously.

According to Chulalongkorn University professor Dr. Suraphol Sudara, president of the Siam Environment Club, there is little governmental and public awareness of the value of the mangrove forests.

"Because people see that mangroves grow in mud and mistakenly think that they are valueless."

He says that the destruction of the mangrove forests has little practical meaning for local people until it is too late.

"It is as if we taught the local residents that, without forests, there would be no rainfall. But it takes time for the statement to be proven. So people will begin to realize the importance of the mangroves only when they are faced with the results of [past] destruction," said Chumpol in agreement. [passage omitted]

"The destruction of the mangrove forests will totally destroy fishery, which is the main profession of residents in the area," said Dr. Suraphol.

"We used to have our own seafood and export it to other countries. But now, we have to import blue crabs from Sri Lanka. The simple reason is that we are not aware of the need to preserve our own treasures," he added.

The 10 percent of the Wen River mangrove forest that remains consists of thin strips of mangrove along the river's banks. These trees are safe because experience has taught the locals that the trees provide shelter from the monsoon storms.

The government has been attempting to control the situation since 1984 by grading mangrove forests nationwide into zones: Conservation, Economic A and Economic B.

Under this scheme, the Conservation Zone extends 75 metres inland from the coast and 20 metres back from the banks of rivers and canals.

Economic Zone A land is targeted for mangrove cultivation, although the land can be used commercially providing the nature of the business does not affect the mangroves.

Land categorized as Economic Zone B can be used for any venture approved by the relevant provincial authorities.

However, the grading system has yet to be enforced. The government has announced tht it will come into effect in 1993, in order to let those who have invested in land covered by the scheme derive some return from their outlay. The government has also approved the budget for the forest management unit to erect 100 kilometres of boundary markers to delineate clearly the extent of the Wen River Economic Zone A by the end of this year.

Yet some observers feel that, by the time the measures are enforced, they will be of little practical benefit.

"It is becoming more difficult to find land to replant mangroves on, let alone to conserve. Sooner or later, I think the government will have lost all the conserved forest and the land will, instead, belong to the residents and encroachers.

"I wonder whether, in 1993, we will be able to implement the government plan or not. I am afraid that the Economic Zone A land will be totally occupied or destroyed," said Chumpol.

Facing his unit are the problems of moving locals out of the forest reserve. Chumpol remains uncertain as to which authority will oversee any relocation and as to the availability of suitable alternative land for those forced to leave the area.

But Dr. Suraphol is adamant that the Wen River mangrove forest can be saved if the provincial authorities devote themselves to the task.

"The provincial authority, which has full power, must come out and stop encroachment in the mangrove forest reserves. There must be no more deforestation," he stated.

He would also like to see all land speculators made to set aside a percentage of their land for mangrove cultivation.

"If we can make the entrepreneurs, no matter whether they are prawn farm owners or not, grow mangroves on their land, it will make the dream of mangrove reforestation come true," he said.

VIETNAM

Post-Graduate Course on Resources, Environment Ends

BK1611155590 Hanoi VNA in English 1443 GMT 16 Nov 90

[Text] Hanoi VNA November 16—The second post-graduate course on natural resources and environment was closed here today at the Centre for Natural Resource Management and Environment Studies of the Hanoi University.

The first such course was held here last year.

The course was attended by 23 participants who are researchers, teachers and managers in those fields of activity related to natural resources and environment, during which lectures were given by 30 Vietnamese scientists and eight specialists from Germany, the United States, Britain, Thailand, Canada and Australia.

The course was provided with teaching documents and financial assistance by the International Union for Conservation of Nature and Natural Resources (IUCN), the World Wildlife Fund for Nature (WFF), the Swedish International Development Authorities (SIDA) and the Australian embassy in Vietnam.

During the six months' training, the participants were equipped with basic ecological knowledge related to the development and management of various natural resources, and to the assessment of their impacts on the environnment, as well as to the tropical ecosystems in Vietnam and their protection.

INTRABLOC

UNEP Experts Examine Giurgiu-Ruse Pollution

AU2911211990 Bucharest ROMPRES in English 2039 GMT 29 Nov 90

[Text] Bucharest, ROMPRES, 29/11/1990—Following an agreement between Romania and Bulgaria on the one side and the United Nations Environment Programme (UNEP) on the other, regarding an international expertise [assessment] to be conducted by the latter in the Giurgiu-Ruse area, two UNEP experts, Dr. Robert Boldt, engineering expert, and Dr. Cornelius van der Heijden, specialist in air pollution research, director of the Dutch Institute for Public Health and Environmental Protection, were on a preliminary fact- finding visit to the Giurgiu Chemical Combine from 26 to 28 November, when they left for Ruse.

This is the UNEP experts' first investigation mission to identify and clarify the technical side of the matter (such as polluting agents etc.), after which they are expected to return with adequate equipment for the measurements proper.

Hungarian-Polish Environmental Agreement Signed

LD2011144990 Budapest MTI in English 1102 GMT 20 Nov 90

[Text] Warsaw, November 20 (MTI)—Hungarian Minister of Environmental Protection K. Sandor Keresztes signed an agreement of cooperation with his Polish counterpart Ronislaw Kaminski in Warsaw on November 19.

The agreement makes it possible for the two sides to cooperate in coordinating their views on international conventions and to act jointly in developing the background industry for environmental protection.

The document promotes consultations in the spheres of science, economy and state administration, emphasizing the importance of company contacts and encouraging the cooperation of environmental protection movements.

The Hungarian delegation is to participate in the consultations of ministers of environmental protection of the Central-East European region in Warsaw on November 20.

New Nuclear Reactors To Be Built in CSFR, Hungary

AU2011151190 Vienna PROFIL in German 19 Nov 90 pp 72-78

[Report by Christian Skalnik, Annemarie Kramser, Burgl Czeitschner, and Petra Ramsauer: "We Are Hostages of the Nuclear Industry"]

[Excerpts] [Passage omitted] "The only alternative to the traditional way of producing power from brown coal is the use of nuclear energy," says Michael Zantovsky, Vaclav Havel's press spokesman. Most Greens in the CSFR think so too.

Protests of those who are directly affected—for instance, protests lodged by the Budweis authorities last week—can at best help limit the damage. The CSFR Government will follow the recommendation of the Southern Bohemian Regional Parliament and order a halt to the construction of reactor blocs 3 and 4 of the disputed Temelin Nuclear Power Plant. However, blocs 1 and 2 will be built as scheduled and will be put into operation soon.

Once they are completed, these two nuclear power plants will supply between 3,000 and 4,000 megawatts of electricity. However, "in order to continue the dynamic economic development," the CSFR requires additional electricity, Karel Brychta of the Czech Energy Ministry says.

It is still uncertain how things will continue with the disputed power plant at Bohunice. Following Western protests against the nuclear power plant, which must be completely rebuilt, the government promised to close it down immediately, if the report of an expert delegation confirmed that there were serious defects.

However, the "renunciation of nuclear power," announced by some Austrian newspapers following recent developments in connection with Temelin, is out of the question in the CSFR. As an alternative to the two reactors that were given up, the CSFR plans to set up smaller, allegedly safer reactors, according to the French example. According to plans that have not yet been published, four such small reactors will be set up by 2005. The following sites have already been fixed:

—Kecerovce in eastern Slovakia;

—Blahutovice in northern Moravia;

—Tetov in central Bohemia, a few kilometers away from Prague;

—Pocrady in northern Bohemia.

According to sources in Prague, additional electricity will be produced by nuclear fission in the immediate vicinity of Most and in Ostrava. [passage omitted]

Moreover, Austria's Czechoslovak neighbors have the following plans.

—In Mohovce, Slovakia, where at present two reactors produce electricity, the security techniques are to be improved, and then two additional reactors will be set up.

—In Plzen a nuclear reactor is currently being set up which will not produce electricity but solely thermal power.

In the struggle against environmental pollution and economic misery, Hungary also banks on nuclear power.

In Pacs, just a few kilometers away from the Austrian border, two 930-megawatt reactors will be set up in addition to the existing two reactor blocs that are now in operation.

For the time being, only Poland has refused to use nuclear technology. Following detailed investigations by experts, the construction of a nuclear power plant northwest of Gdansk was discontinued. Poland generally intends to do without nuclear power in the next 15 or 20 years. That has been explained by the fact that the planned economic growth can also be achieved with conventional energy resources. [passage omitted]

BULGARIA

Romanian Ship Spills Oil in Port of Burgas

AU2111125090 Sofia BTA in English 2138 GMT 20 Nov 90

[Text] Sofia, November 20 (BTA)—At about 02:00 hrs this morning some Bulgarian sailors discovered a great fuel oil slick in port Burgas. The oil fuel spill came from the Zolau, a Romanian merchant vessel, which poured its own fuel into the water due to reasons yet unknown. All forces available at port Burgas have been mobilized. In 12 hours the cleanup crews managed to take in about 20 tons of fuel oil and to prevent the spreading of the slick outside the port and into the open sea.

The work is going on, because pier walls and ships have been hit by the slick. There has never been such a big oil spill in port Burgas before. The most severe sanctions will be imposed on the offenders. The captain of the merchantman will have to pay a maximum fine of about 100 thousand leva; besides the Penal Code contains provisions for imprisonment of up to five years in such cases. The ecological damages will be calculated separately.

CZECHOSLOVAKIA

Agreement With EC on Environmental Issues

LD1411085890 Prague CTK in English 0002 GMT 14 Nov 90

[Text] Prague Nov 13 (CTK)—Signature of an agreement on cooperation between Czechoslovakia and the European Community in the years 1991-1992 embracing 18 specific projects is being prepared, EC Director-General for Environment, Consumer Protection and Nuclear Safety Laurens Brinkhorst told newsmen here today.

The projects include disposal of dangerous wastes, a study on desulphurization of the thermal power plant Prunerov II in North Bohemia, safety of nuclear power plants, and others.

Brinkhorst, on a three-day official visit to Czechoslovakia at the invitation of the Czechoslovak government since yesterday, highly appreciated that emphasis is placed in Czechoslovakia's economic reform on environmental protection.

He announced that the European Community is considering the possibility of Czechoslovakia's joining the European agency for the environment, now being formed.

Brinkhorst, who was received by President Vaclav Havel earlier today, will go to Slovakia tomorrow. He will inspect, inter alia, the controversial Czechoslovak-Hungarian water project on the Danube, Gabcikovo-Nagymaros. The EC official said that global European ecological views must prevail over local interests, but will offer assistance if asked. The Hungarian side wants to entirely discontinue the construction, while Czechoslovakia holds the view that if completed, the project will be less harmful than if left as it is.

EC Environment Official Visiting North Bohemia, Gabcikovo

AU1411134190 Prague CTK in English 1826 GMT 12 Nov 90

[Text] Prague Nov 12 (CTK)—European Community Director-General for Environment, Consumer Protection and Nuclear Safety Laurens Jan Brinkhorst arrived here today for a three-day official visit to Czechoslovakia "to take stock of cooperation" that has taken place between the country and the community.

Brinkhorst told journalists after his arrival that he would discuss extension of this cooperation with Federal Environment Minister Josef Vavrousek and his Czech and Slovak colleagues. He would visit North Bohemia, a region affected by pollution, and the controversial Gabcikovo-Nagymaros energy and water project on the Danube in South Slovakia, now suspended because of ecological objections.

On Tuesday, Brinkhorst will meet President Havel.

Brinkhorst noted that Czechoslovakia had received 30 million ECU's from the EC for ecological projects this year and appreciated a recent agreement between Czechoslovakia and the Community on the establishment of the Elbe Commission which is to be concerned with the removal of sources of pollution from this European river.

MAPE Plant's Denial of Contamination Threat Contested

AU1311161090 Prague LIDOVE NOVINY in Czech 10 Nov 90 p 3

[Unattributed report: "Radiation's Name Is MAPE"]

[Text] Mydlovary— The director of the MAPE Mydlovary Ores Chemical Processing Plant [Stefan Lasica] told

a CTK correspondent that official institutions had repeatedly clearly refuted the claim that the plant adversely influences the surrounding area. According to the Institute of Landscape Ecology of the Czechoslovak Academy of Sciences in Ceske Budejovice, however, the director's claim is incorrect. The MAPE plant's radioactive waste dump, a report on which was published by the Vienna Institute of Ecology, is located in the immediate vicinity of land used for agriculture. According to measurements made by the Institute of Landscape Ecology, the dump's radiation level is [expozicni prikon] 23 times higher than the natural background radiation in the area. As the dump is not secured against radionuclides being washed into the soil, there is a real danger of contamination of the adjoining fields and of the accumulation of radiation in agricultural crops.

POLAND

Minister for Environmental Protection on Ecological Goals

91WN0055A Warsaw GAZETA PRZEMYSLOWA in Polish No 20, 30 Sep 90 pp 1, 3

[Interview with Dr. Bronislaw Kaminski, Minister for Environmental Protection, Natural Resources and Forestry by Jan Golab and Andrzej Kalinowski; place and date not given: "In Search of Harmony"]

[Text] [GAZETA PRZEMYSLOWA] Mr. Minister, industry and environmental protection are, I believe, by their very nature, in conflict. Does the possibility exist for harmonious cooperation between industry and ecology?

[Kaminski] The current state of the environment is proof of the sharp conflict within our economy and particularly between industry and nature as well as the environment. Besides the threat to nature and man created by the technologically outdated industry and an inefficient economy, ecological barriers to further economic development are emerging and its efficiency is diminishing. Striving for harmony between the economy and the natural environment is our principal goal.

Industry is a very important part of our economy and of human activity. Up to now, it has been judged in a fragmentary and sectorial manner and in terms of a short time frame. The effects of its activity felt today and in terms of the future were not taken into account. Industry's negative impact is noticed when we assess the efficiency of the entire economic complex according to a longer time frame of 20 to 30 years. The deep conflict between industry and ecology in Poland is a fact that we commonly acknowledge, particularly in Upper and Silesia and in 26 other ecologically threatened regions.

Therefore, our primary and long-term goal is the philosophy of ecodevelopment. This long-range and complex outlook is beneficial both for the environment and the economy. The mining industry, for example, demonstrates moderately inexpensive coal production but, by carrying off its saline water into the Vistula River, it makes it necessary to modernize installations damaged by corrosion two to three times more often at the Sendzimir Steelworks in Krakow. I am not counting other losses here caused by the salinity of industrial water. Thus, it may be said that in such instances, the ecology is protecting industry from itself for if today's technological level of production or the structure of our economy is unfavorable in an ecological sense, then this also creates barriers for the further development of the economy.

[GAZETA PRZEMYSLOWA] Under current conditions the majority of work establishments cannot afford action that would successfully eliminate environmental pollution.

[Kaminski] We do not want to pursue environmental protection on the rubble of the economy. We must remember that at the start of this road we have an enormous load of unaccomplished environmental protection capital investments estimated to be approximately $30 billion and the inevitable necessity of modernizing our economy structurally and technologically. Today, we place two basic tasks before us. First of all, we must eliminate or at least substantially reduce extreme environmental hazards in a matter of three years. Secondly, Polish ecological standards should be brought to the level of EEC requirements within seven to 10 years.

Let us say this, the short-term program of environmental protection which is a part of our ecological policy and is estimated to last three years is the kind of program in which economic considerations must be dominated by ecological ones. What I have in mind is that which is contained in this program, e.g., the assuring of healthy food and clean drinking water for the country's population in a matter of three years. If this cannot be done in the entire country, then first consideration should be given to ecologically threatened regions. Sewage treatment plants which are included in this program must have priority.

A similar situation applies to the group of 80 plants which constitute the country's worst environmental polluters. We shall be particularly tough on these since it is part of our policy to eliminate extreme environmental hazards. We will conduct a radical policy with respect to the aforementioned. In 1990, the national list of 80 will be expanded to include voivodship lists which, altogether, encompass approximately 50 plants.

Current ecological requirements are based on technological standards. This is simply the ecological forcing of production modernization. And our country must be no different if we want to develop economic cooperation and tourism with EEC countries. Otherwise, our manufactured goods will not be bought there. I have already introduced technological emission standards by way of an ordinance passed in February of this year pertaining

to all sources of fuel burning. The ordinance contains a plan for attaining European standards in a matter of seven years. Currently, together with the Ministry of Industry, we are working on the technological standards for other sources of pollution—sewers and traffic-related exhaust fumes. These requirements will be gradually toughened. The outlined ecological criteria have been included in the conditions for economic credit granted to Poland by the World Bank.

[GAZETA PRZEMYSLOWA] However, all of this is taking place under conditions of a shortage of funds. In this situation, the cost of environmental protection will, nonetheless, be shifted onto the public.

[Kaminski] We would like for the elimination of environmental threats to proceed quickly. However, the economic conditions do not really allow this. Essentially, if we want to accelerate the rate of activity in the area of environmental protection, then we must find greater financial resources in the operations of plants themselves as well as in the budget. However, the bottom line is that all of these funds come out of the pockets of our citizens either directly or indirectly. Thus, what matters here is to consciously select a program or plan for achieving improvement in the state of the environment. Consciously in the sense that the public must know that it is financing this scenario and that it has an influence on its acceptance. It [the public] must be aware of the ecological threats and have strong motivation for saving the natural environment.

We are acting hierarchically. I repeat, there, where extreme [ecological] threat exists, we apply radical conditions and we shall not back out of them. If this or another plant is important from an economic standpoint, it must obtain assistance from the restructuring fund. I see an enormous role in this area for the industrial sector as well as for individual branches which can offer each other mutual assistance in eliminating environmental hazards. This pertains, in particular, to plants of the chemical, power, and mining industries. They can coordinate their efforts in eliminating these hazards. We, on the other hand, can point out the simple available resources in the economy from the point of view of ecology.

This is the stand that we have been presenting in discussions on the subject of the future of the construction of a nuclear power plant in Zarnowiec, pointing out the existing possibilities—inherent in the power industry itself—of improving the country's energy balance.

[GAZETA PRZEMYSLOWA] It follows then that....

[Kaminski] That there are three parallel roads to the implementation of tasks—three chances that ought to be made use of concurrently:

- The market mechanism being created currently must be tied to the new ecological law and an effective ecological policy.
- We must introduce foreign capital and modern technology to Poland.
- The socializing of environmental protection is necessary, i.e., reaching the public with complete, honest information as well as obtaining from it acceptance for the program of saving the natural environment.

[GAZETA PRZEMYSLOWA] Are there any effects to speak of from the international cooperation for environmental protection in Poland? There is less and less talk about the ecoconversion of our debts.

[Kaminski] Outside assistance for the protection of the environment in Poland has been used for the modernization of the system of environmental protection management as well as the breakdown of organizational and technological barriers in this area. Licenses for the fluid burning of coal, general concepts for municipal waste management for a city the size of Warsaw—these are examples that illustrate the effects of this assistance.

On the other hand, we do not have a developed, effective mechanism of ecoconversion for the Polish debt. Certain elements of this method are being implemented in cooperation with Finland in the area of power engineering but the obstacle of Polish money in this cooperative effort appears constantly. We cannot introduce an economic system that would generate inflation at a time when we are battling inflation in the country. Therefore, we must find such favorable formulas that would enable the reduction of the Polish debt and the conversion of part of it into investments for environmental protection.

[GAZETA PRZEMYSLOWA] Is this possible?

[Kaminski] I feel that it is possible. There is growing awareness in Europe that the environmental threat coming from Poland could be felt by other countries as well, for example, the Baltic States by way of the pollution of the Baltic Sea. The need for radical action in the area of environmental protection distinguishes our country from among other debtor nations and justifies the precedent of having our debt extinguished. This concerns if only such countries as the FRG, Denmark, Sweden, and Finland.

The international awareness of ecological threat means that favorable credit lines for environmental protection are opening up. It is already a well-known fact that the World Bank is preparing several credit lines for this purpose. The American Export-Import Bank is offering credit for the protection of the environment. The French and the Italians are also talking about this.

The Nordic Bank, together with the Nordic states, has created the NEFCO enterprise for which it found the funds to strengthen the guarantee of its capital entry into the Central European region. Naturally, our guarantees for this investment activity are insufficient for the West. We are trying to correct this situation and, for example, from 1 November equipment for this purpose imported by foreign investors will be tax and duty free.

[GAZETA PRZEMYSLOWA] What about the trilateral international commission: Poland, Czechoslovakia, and the GDR?

[Kaminski] At the time of its negotiation, the trilateral agreement constituted progress capable of being achieved as a result of long negotiations. To a considerable extent, it is declarative in nature and this gives rise to the need for renegotiation. In addition, we will be losing one partner. This is all the more reason to take up anew the issue of the agreement or search for other legal-international solutions.

We are assessing our ecological cooperation with our neighbors negatively. Of what use is the good climate of cooperation when the Oder, Bug, and other rivers are critically polluted in places and when large streams of waste flow in our direction? We are not without blame, either. That is why we will search for solutions to these problems. In the next two years, we will create an air pollution monitoring system on the border with Czechoslovakia and the GDR and we will inform the world about the streams of pollution flowing toward us.

[GAZETA PRZEMYSLOWA] The ecological state of certain regions in Poland—Upper and Lower Silesia, the Tarnobrzeg region and the Walbrzych region—arouses serious public concern and presents a challenge for the new territorial self-government. What kind of assistance will these regions be able to count on?

[Kaminski] In all countries with a market economy, there is the standing principle that capital investments for environmental protection are to be financed by the party creating the pollution. The Ministry of Environmental Protection will not involve itself in the building of systems for the protection of the environment in such or another plant. It should be kept in mind that economic units have the legal obligation to care for the environment. Financial backing from ecological funds or even other sources is necessary for at least a few years primarily in ecologically threatened regions where enormous neglect has occurred.

The following is often heard in plants, "Leave us the sums of money that we are paying in fines and we will build equipment that will reduce the emission of harmful pollution for that money." The majority of this money comes back to the plants in the form of backing for protective investments. However, a portion of it is spent for ecological education, protection of the natural environment, or as compensation for losses caused by pollution in agriculture, forestry, and the economy. It is estimated that these losses are to the order of a minimum of 10 percent of the national income. We are constantly living at the expense of future generations. We cannot as yet fully compensate for these losses but we must begin to alleviate the effects of environmental pollution.

[GAZETA PRZEMYSLOWA] Thank you for your remarks.

YUGOSLAVIA

Assembly Ratifies Montreal Ozone Protection Protocol

LD3011130490 Belgrade TANJUG in English 1118 GMT 30 Nov 90

[Text] Belgrade, Nov 30 (TANJUG)—The Yugoslav Assembly has ratified the 1987 Montreal protocol on the control of substances harmful to the Earth's ozone layer, the Yugoslav government Secretariat for Information announced today.

Yugoslavia has also ratified the 1985 Vienna convention on the protection of the ozone layer earlier this year.

Yugoslavia thus accepted all international obligations: to control the production of aerosol products, cooling equipment, polyurethane foam, fire equipment and other products containing freon and halon—the substances which, when used in great quantity, create ozone holes in the atmosphere.

The Yugoslav Government today also announced the possibility of the World Bank granting a credit for a quicker adaptation of the Yugoslav industry to the demands of the Montreal protocol.

Although Yugoslavia ratified the international regulations on the protection of the ozone layer only this year, its industry has reduced the use of harmful substances by 20 percent since 1986.

Under international regulations, the production and use of substances which damage the Earth's protective ozone layer should completely be abandoned by the end of the century.

INTER-AMERICAN AFFAIRS

Nicaraguans Discover Illegal Lumbering by Costa Rican Companies

91WN0073A Managua LA PRENSA in Spanish 31 Oct 90 p 14

[Text] San Carlos—The population of San Carlos, Rio San Juan, is very upset over the cutting of precious wood by Costa Rican companies in the "Palos de Arcos" area across from Los Chiles. The cutting took place between February and May with the consent of local authorities under the previous government.

At the office of the Institute of Natural Resources (IRENA) in Region 4, Director Jaime Guillen indicated that the first news of the illegal timber cutting in Rio San Juan came from complaints by Costa Rican agencies. They estimate the stolen lumber at 7,000 cubic meters of bombax, cedar, genizaro, oak, mahogany, and other types of wood.

Guillen added that dozens of kilometers of mountainside were completely leveled by the lumber traffickers, who used a fleet of 500 heavy trucks, working day and night to transport the wood to Costa Rica. The haul is estimated to be worth $2 million.

The population of Rio San Juan is concerned about the ecological imbalance in this place, where the flora and fauna are in danger of extinction thanks to the unscrupulous activities of the lumber traffickers.

ARGENTINA

Rally Protests Safety Conditions at Atucha-1 Nuclear Plant

PY1911224090 Buenos Aires DYN in Spanish 0028 GMT 17 Nov 90

[Text] Buenos Aires, 16 Nov (DYN)—Greenpeace leader Juan Schoeder reported today that "foreign experts have said that no nuclear plant in Europe or the United States would be allowed to operate under the safety conditions found at Atucha-1." Schoeder added that "we have reports that the plant is now in worse shape, in terms of safety, than it was during the critical period" that forced the National Atomic Energy Commission (CNEA) to shut it down for repairs for 16 months.

Schoeder made these remarks during a rally of militants and townspeople in front of the town council of Zarate, 25 km from Atucha. Participants in the rally demanded trustworthy information from CNEA officials on the safety of the plant, which is currently operating at full capacity.

National Deputy Alberto Aramouni of the Popular Democratic Party and Jorge Orlandi, president of the Zarate Deliberative Council, participated in the rally and clearly explained their disagreement with the CNEA's treatment of their demands.

Aramouni criticized the CNEA because "it claims to have the right to deny information [words indistinct] when we want it." He said that safety in the nuclear sector "is not achieved with the creation of an ecological country or an Ecology Ministry," as President Carlos Menem once proposed, but when "deputies of the ruling party take out the environmental preservation projects they have been keeping in their desks."

Schoeder also handed a petition to Mayor Aldo Arrighi requesting "the implementation of an emergency plan for a possible nuclear accident, providing plans for evacuation, treatment for radiation victims, transportation, and food supplies," so the community will know what to do in case of a nuclear emergency.

BELIZE

Sugar Warehouse Explosion, Fire Contaminates Village

FL2111152590 Bridgetown CANA in English 1358 GMT 21 Nov 90

[Text] Belize City, Nov 21, CANA—Some 200 villagers near the northern Belize district of Orange Walk were treated for chemical contamination after a weekend explosion and fire wrecked a warehouse owned by Belize Sugar Industries (BSI), according to reports reaching here.

A medical spokesman said the residents of the village of Chan Pine Ridge, near the Tower Hill Sugar Factory, complained of headaches, swollen eyes, hypertension, and rashes.

The explosion occurred early last Saturday morning. A drum of sodium hypersulfate is believed to have leaked and come into contact with water, causing a cloud of poisonous gas to spread over the area.

A crew from the national fire service was unable to control the blaze. Help was sought from the British Army garrison, and it took their team over 12 hours to make the area safe. Major Simon Morgan said calls were made to the United Kingdom to get advice on how the chemicals should be treated.

Villagers were evacuated by bus to Orange Walk Town and were allowed back into their homes on Sunday evening.

General manager of the BSI factory, Frank MacFarlane, said the chemicals were used to prepare plantation white sugar for the local market. "Production of this year's crop will not be affected because we will be able to order new supplies," he said. He said the replacement cost for the warehouse could be 50,000 dollars U.S.

Despite reassurances, farmers are worried that their sugar crop, which is due to be cut shortly, will be contaminated.

Prime Minister Orders Inquiry Into Factory Fire

FL2611164590 Bridgetown CANA in English 1602 GMT 25 Nov 90

[Text] Belize City, Belize, Nov. 25, CANA—A commission of inquiry has been set up by Belize's Prime Minister George Price to investigate an explosion and fire at a chemical warehouse a week ago.

Prime Minister Price wants the four-man team to investigate why the explosion happened. The investigators will look at safety procedures and try to find out the short and long term effects on the villagers, surrounding land, and crops. They are also charged with determining the sugar industry's impact on the environment in general. They will look at the impact pollutants are having on the region's rivers and waterways. Hospital and fire services will be investigated. Price says the inquiry will be public and he wants its findings and recommendations as soon as possible.

The explosion sent a poison gas cloud over a village in the Orange Walk sugar-producing district. Some 350 villagers had to be evacuated from Chan Ridge after drums of sodium hydrosulfite, owned by Belize Sugar Industries [BSI] exploded in the early hours of November 18. 270 of them had to be treated for symptoms which included headaches, rashes, swollen eyes, and sore throats.

The chemical, which is used to process white sugar, is thought to have leaked. It is explosive when it comes into contact with water. During the previous week, Belize had been experiencing heavy rain. Local firemen were unable to deal with the fire because they did not have breathing apparatus. British Army firemen from Airport Camp had to be called in. It took more than 14 hours to bring the blaze under control. One local officer had to be hospitalised.

The villagers were asleep when the poison gas cloud of sulphur dioxide and hydrogen sulfide covered the area. Teacher Areadin Carillo says they were only told of the emergency at daybreak. Buses were provided by the sugar factory to evacuate them to the town hall in Orange Walk later that morning, but to get there they had to pass through the fumes near the warehouse. Mrs. Carillo says some of the villagers were scared and hid when they saw police arrive. They were later allowed back into their homes.

November 19 was a holiday in Belize, and Mrs. Carillo says it was difficult to find appropriate medicines. She was grateful for help, though, from the factory, which had been paying for treatment and providing transport to the hospital. It has also been suppling water because catchment tanks are contaminated. Doctors went to the village on Tuesday to do a house-to-house treatment and take blood samples.

Despite reassurances from BSI, farmers are worried about contamination of their cane. They also say beans, watermelons, peanuts, and corn have been damaged. Tower Hill's general manager, John MacCarlave, said production of this year's crop will be affected. He said about 50,000 dollars U.S. damage had been caused.

BRAZIL

IBAMA Orders Closure of Illegal Quarry

PY2311174590 Rio de Janeiro Rede Globo Television in Portuguese 1600 GMT 23 Nov 90

[Text] The IBAMA [Brazilian Institute for Environmental Affairs and Renewable Natural Resources] has closed the Sao Tome stone quarry in Minas Gerais because the mining operations have destroyed a swampy area which was an important source of water for the dry regions of northern Minas Gerais.

The quarry was operating illegally in Bocaiuva, 390 km from Belo Horizonte. A team from the IBAMA, the state environmental foundation, and the forest police caught the quarry chief red-handed. The police did not find any heavy machinery at the site, but there were indications that tractors had been working in the area. The swampy area, which was considered an oasis amid the dry vegetation of northern Minas Gerais, was totally destroyed.

Environmental Official Ties Death Threats to Forest Preservation Work

PY2111023190 Rio de Janeiro Rede Globo Television in Portuguese 2200 GMT 19 Nov 90

[Text] The Federal Police are watching the IBAMA [Brazilian Institute for Environmental Affairs and Renewable Natural Resources] building around the clock to protect Americo Dunes, IBAMA superintendent in Santa Catarina State, who has been receiving death threats for a month. Dunes' wife and daughter have already gone to another state. Dunes has told the Federal Police who would like to see him dead.

[Begin Dunes recording] I believe that those making these threats are people who are used to violating the law. These are small groups that are seeking to disrupt a process related to exploitation of the Atlantic coast forest. They are seeking to prevent people from carrying out a more serious job in this country. [end recording]

Dunes has reason to believe that these death threats are linked to lumbering in the Atlantic forest. Here at the Santa Catarina branch of IBAMA there are more than 400 cases involving sawmills that attempted to cut logs in reserved areas. The situation has worsened since late September when President Collor signed a decree indefinitely banning any lumbering in the Atlantic forest.

The presidential decree is designed to end the lumbering that has already devastated 96 percent of the Atlantic forest in Santa Catarina State. There are 4,000 sawmills with more than 100,000 workers. This business, which involves millions of cruzeiros, is now at a standstill.

COLOMBIA

Chemical Spill Kills 35 Million Fish in Barrancabermeja

PA2911030390 Madrid EFE in Spanish 0006 GMT 29 Nov 90

[Text] Barrancabermeja (Colombia), 28 Nov (EFE)—At least 35 million fish were killed as a result of a chemical spill in San Silvestre Lake (northern Colombia), where the authorities have declared an ecological and health emergency.

Experts of the Institute for Development of Renewable Natural Resources (INDERENA) are investigating the cause of the ecological disaster which occurred on 22 November in the Rosario Canal, killing fish of several kinds, small crocodiles, and newly hatched turtles that were found floating on the waters of the Sogamoso River.

Although experts initially attributed the contamination of the waters to the Colombian Petroleum Enterprise drainage that spills into adjoining canals, Gabriel Reyes, Ecopetrol manager in Barrancabermeja, said that the company has dehydration plants for residual waters.

Biologists Jairo Puentes and German Echeverri, INDERENA officials, said that the residue of herbicides used to fumigate the plantain crops is also being considered as a possible contaminant.

The mayor's office in Barrancabermeja, Santander Department, has warned the people of the danger of using water from San Silvestre Lake and Rosario Canal or eating fish that survived the contamination, because they may come down with gastrointestinal disorders.

Also, it noted that the toxic spill has caused multimillion dollar losses to fishermen and to the neighboring inhabitants of El Llanito. The mayor's office explained that the chemical spilled is so strong that it has melted the wire fencing along the edge of the lake.

GRENADA

Government Scraps Waste Processing Plan

FL1911144590 Bridgetown CANA in English 2140 GMT 17 Nov 90

[Text] St. George's, Grenada, Nov. 17, CANA—The Grenada Government has dropped plans for the establishment of a plant using waste to produce electricity, according to Communications and Works Minister Phinsley St. Louis.

The minister told CANA [Caribbean News Agency] the government is not satisfied that the project is worthwhile. He said contrary to popular opinion that the government had gone blindly into a tentative agreement with Waste Conversions, Limited, "the agreement was not ratified because the government had to conduct its own investigations into the proposal." Under the agreement, the Grenada Government must have ratified the document by August of 1990, "which was not done, and therefore there is no agreement in existence because the deadline for rectification has passed", St. Louis said.

However, at least one other government official told a meeting recently the decision to shelve the project was taken because of public outcry against it. Health Minister Kenny Lalsingh admitted that many people were "against the establishment of such a plant here."

Opponents of the plan had said Grenada did not generate enough waste to meet the requirements for generating electricity. They said the government was not in a position to monitor imported waste to ensure that it did not contain radioactive materials.

PERU

Environmental Law 'Worries' Industrial Sector

Concerns Highlighted

91WN0070A Lima EXPRESO in Spanish 28 Oct 90 p 7

[Report by Ana Maria Mejia]

[Text] The majority of the people in Peru still have no ecological awareness, and this ignorance is aggravated by the poverty which is preventing the sustained economic development of our country.

A large portion of the responsibility falls to the government, which has never concerned itself with the definition of a national environmental policy leading to the utilization of our natural resources to the benefit of the people's well-being. For this reason, when the Environmental and Natural Resources Code was promulgated last September, new prospects were opened up for the consideration of those who, year after year, had been urging the need for legislation in this connection which would take the interests of the country into account. After 30 years, a monumental step has been taken. The code in question defines the guidelines for an environmental policy which is intended to be consistent and homogeneous. Its integrational criterion is designed to unify the scattered legislation which exists on the subject.

Obviously, the new codification cannot be a "magic wand" which will resolve environmental problems within a short period. In many developed countries, for example, it has taken industry whole decades to acquire the ability to develop the new technologies designed to protect the environment. This will not be an easy task.

An individual and collective commitment will be needed if there is to be a modification of the social activities and habits which have prevailed to date, and if, in turn, the responsibility for repairing the ecological damage is to be assumed.

Some Objections

As was to be expected, the promulgation of this code provoked an immediate reaction from sectors linked with industry, the mining enterprises among them. Their representatives have raised many objections to the provisions set forth in the code, terming them imprecise and unconstitutional. Senator Beatriz Merino, the president of the Senate Commission on Ecology, has said that the Environmental Code needs to be perfected. "It is a document which seeks to improve the quality of life for the citizens, but we do not want it to become a tool of aggression against productive activities," she said.

Industrialists Express Views

In an interesting demonstration of democracy, a discussion was held with both governmental and nongovernmental organizations and bodies linked with participating industry. They made their respective suggestions, through their spokesmen, to the members of the commissions on ecology in both legislative chambers.

In this connection, the representative of the National Mining Association, Luis Rodriguez Mariategui, warned that "the code has given rise to great anxiety in all of the industrial sectors in the country." This is because, he went on to add, "many of its articles lack legal definition, since they do not specify what the criminal types of conduct are." He also expressed concern about the provisions of Article 70 of the code. It says that the mining concessions can be expropriated in the social interest, following payment of indemnification based on an appraisal. In addition, those industries which act in violation of the norms set forth in the code will revert to the state, without the right to any compensation. Rodriguez Mariategui said that this provision justifies confiscation. "This would be expropriation without payment to the mining companies, and that is confiscation pure and simple."

Concerning this provision, Jorge Caillaux, president of the Peruvian Environmental Law Society, explained that the norms set forth in the code were not meant to allow confiscation, because what is turned back is the concession, not the infrastructure, which is owned by the concession holder. A spokesman for that same institution said for his part that "this is not an unconstitutional norm, because the Constitution says in its Article 118 that both renewable and nonrenewable natural resources (minerals) belong to the state, and it has the authority to establish conditions which, if violated or not fulfilled, will lead to the reversion of the concession to the state."

Deputy Lucila Shinsato, president of the Commission on Ecology in the lower chamber, said that "the respective commissions are not going to prevent the development of the mining enterprises, because they generate more than 50 percent of state income."

Tax Incentives

The questions raised also came from the representative of the National Association of Industries, Arturo Salazar Larrain, who warned that the tax cost could be equivalent to the investment itself, which is in contradiction with the intent to promote the economic development of the country. In this connection, Deputy Gustavo del Solar said he believes that "Minister of Economy Juan Carlos Hurtado Miller should intervene to ensure that tax incentives are provided and that total tax exemption is allowed for all of the teams working to decontaminate the environment."

There is, on the other hand, a period of 180 days in which industries must adapt to the demands of the code. This period is not long enough for the introduction of any technology or scientific advances which will reduce pollution. However, this period refers only to the fulfillment of the formal obligations, which do not involve any major expenditures. All of the infrastructure investments or expenditures, on the contrary, which up to the effective date had not been required, will have to be made within the periods established by the executive branch. These may range from five to 15 years, depending on the case.

Parliamentarians Optimistic

An atmosphere of optimism prevails among the parliamentarians serving on the ecology commissions in both chambers. They are quite confident that it is will be possible to reconcile the interests of certain industries with the norms set forth in the code. "Those who pollute will have to pay, and this is a universally accepted principle," Gustavo del Solar commented, while Deputy Cristobal Campana said that the miners have been creating difficulties because this is a part of a strategy, but that in the end they will yield. All that remains is to wait for the industrialists to realize that environmental protection will bring dividends in the long run. It is not without good reason that many mining enterprises throughout the world are adapting to these parameters. A consensus is indispensable, for only thus will the interests of the nation be served.

Miners Voice Objections

91WN0070B Lima EL COMERCIO in Spanish 30 Oct 90 p B-9

[Excerpt] "The period established for the adaptation of mining activities to the Environmental and Natural Resources Code should be extended, because it is not possible in 180 days to change systems which it takes many years to introduce," the president of the National Association of Mining, Luis Rodriguez Mariategui, said.

He stated that in the meantime, application of the code should be suspended to give the enterprises in the sector

time to adapt to environmental protection requirements, while creating the conditions needed to achieve the purpose.

"This process requires sizable investments, and it is for this reason that other countries have allowed the mining sector periods of ten to 15 years to implement these norms. Here, on the other hand, the period established for the purpose is 180 days, of which 60 have already elapsed. And if to this brief period we add the current crisis, it is unlikely that the mining enterprises can conform to the code," he explained.

He also asserted that it is necessary to reformulate certain concepts in this new code and to eliminate others "which have punitive aspects constituting an obstacle to mining and oil investment in Peru."

"The recent measure prohibits the exploitation of mining rights, with no payment whatsoever, when the security and prevention norms established by the Environmental Code are violated. This provision lends itself to serious abuse, because this code lacks juridical and technical definition. In addition, there is no authority to which one can appeal in the event that arbitrary action is taken," he said.

As an example of the possible kinds of abuse, Rodriguez Mariategui mentioned Regional Legislative Resolution 018-90-AR/RI of the Inca Region. This document was approved by the Assembly with a view to suing a gold-mining enterprise for loss and damages and demanding cancellation of the rights acquired by the company.

"In this case, misuse of nonrenewable natural resources and destruction of the ecosystem of the region is being alleged. But there is no technical study to support this, nor is any defense by the parties charged being allowed," he asserted.

He said that the recently promulgated code imposes serious criminal penalties, including deprivation of personal freedom for crimes which are not in all cases clearly defined by its norms. He added that not even the term "pollution" has been defined, which is why the obligations enterprises must fulfill are not clear.

"There are even more dangerous norms, such as that which allows the cancellation of contracts between private enterprises and the state if their implementation threatens the protection and safeguarding of protected natural areas. In short, the code is full of prohibitions, restrictions, and corrections," Rodriguez Mariategui said.

He commented that if this measure were implemented immediately, small-scale mining along the Central Highway would have to cease, since the code prohibits the deposit of tailings within a distance of less than 500 meters from watercourses.

EGYPT

Greens Party Leader Outlines Program

NC2711202190

[Editorial Report] Cairo Domestic Service in Arabic at 1405 GMT on 24 November continues its series of interviews with leaders of the political parties participating in the 29 November parliamentary elections with a 20-minute interview with Dr. Hasan Rajab, leader of the Greens Party.

Noting that his party will field 18 candidates in an equal number of constituencies, Rajab says that his party attracted "a very large number of people from the educated class" when it was first established and is now working on broadening its popular base to enable it to contest more seats in future elections.

Questioned on his party's philosophy and goals, Rajab notes that the party was established after the Chernobyl disaster on the initiative of 'Abd al-Salam Dawud. He goes on to say that the party's priority goal is "the establishment of a ministry of the environment which would protect the environment and prevent the pollution of the water, the land, and the atmosphere." He also calls on the government to bring Egyptians working abroad home so that their assets and expertise can be put to use.

Vorontsov Calls for New System of Bureaucratic Responsibility for Environment

91WN0110A Moscow SOVETSKAYA KULTURA in Russian No 46, 17 Nov 90 p 5

[Article by Nikolay Vorontsov, chairman of the USSR State Committee for Environmental Protection: "Disaster Caused by... Thoughtlessness"]

[Text] A fantastically rich gas and oil field has been discovered in the Northern Caspian region (around Tengiz), in Kazakhstan. It is clear that this is a region which may someday replace Western Siberia for us. But does that mean that this field should be used as quickly as possible and to the greatest extent possible?

Oil and gas in that area are found at a very great depth, between three and four kilometers deep, and come from the ground under pressures of 180-200 atmospheres. Our leading expert on seismic monitoring, Azariy Gamburtsev, who works at the USSR Academy of Sciences Earth Physics Institute, has expressed serious concern over large-scale development of the Tengiz oil field in particular. It is a field which has not been the subject of adequate seismic study. Several years will be needed in order to do a seismic survey of the region. There are believed to be a number of faults in the area.

We still remember the Gazli earthquake. Seismic activity can be caused not only by the properties of the Earth's crust itself, but also by quantities of gas, oil and so forth surging forth from underground. This disrupts the primary structure of ground strata, and secondary seismic activity results. We have no experience with development of such rich fields with such vast quantities of oil and gas under such great pressure. If, God forbid, a fire were to start under such conditions how would we extinguish it? So let us not be in too great a hurry; let us make some observations first. Should we perhaps leave this field for our children and grandchildren?

Now a word about the Astrakhan Gas Condensation Combine. It was built with French technology using French equipment, and analogous plants are in operation in France. It should be noted that in France as well these plants did not operate in a nonpolluting manner at first. Yet after five to seven years of operation they presently produce virtually no emissions. The question arises: why does French technology and French equipment not work in our country? What is the problem?

One could claim that we do not have enough qualified personnel, that we have a harsher climate with wide temperature variations, etc. That is definitely true. But something else has also become evident. The Astrakhan Natural Gas Condensation Plant was designed to operate with a continuous supply of electricity. Yet within the past year alone the power was cut off over 160 times! As a result sulphur solidified in the pipelines.

When we purchase technologies from the West we are told that they are nonpolluting, and this is demonstrated. Yes, they are nonpolluting, but only when strict discipline is observed. And what are these hundreds of power cutoffs but a basic lack of discipline? This also represents a basic failure on the part of the planners who did not foresee to what degree the electric power supply to these plants would be reliable.

Now on to the subject of technocratic thinking. I recently met with one of the USSR Council of Ministers deputy chairmen (I will not reveal his name), who was firmly convinced that all demonstrations by the Greens are aimed solely at undermining the Soviet system and depriving the party of its authority.

Of course, many demonstrations by the Greens which lack essential information and often an adequate level of qualification are marked by many extremist excesses. But it would be wrong to see only that, just as it would be wrong to regard every party member as a party bureaucrat or every official as a representative of the administrative-command system. Why should we regard any person who supports environmental protection as an enemy of the Soviet system?

Labels have been applied: "green bawlers," "loudmouths," "demonstration anarchy," etc. Do we need to think very hard to realize where this demonstration anarchy came from, who caused it? It was caused by these same people who for years said: I said it, so it must be true. People who kept from the people the truth about our country's ecological condition.

It was right for the 28th Party Congress to give a political assessment of efforts to hide the truth about the Chernobyl nuclear accident. Because we began telling the truth about Chernobyl only at the beginning of 1989. Until that time we just had other Council of Ministers deputy chairmen who did not take personal responsibility for this. And some of them actually thought that they were acting like heroes: they crawled into the scorching heat themselves and sent others...

In January of this year at the request of a public health station and environmental protection organs in the northern part of Sverdlovsk Oblast a shop producing chlorosulfonic acid was shut down as a result of its state of total disarray from an ecological standpoint. Twelve days after the shop was closed, the roof caved in and crushed all the production equipment.

But here is the remarkable thing. A great fuss was made about the fact that State Committee for Environmental Protection organs and public health agencies were shutting down this production facility. People wrote that our country would be deprived of medicines as a result of environmental protection organs' incorrect stance. But not a word is said about the fact that the closing of the shop prior to the disaster resulted in no workers being killed and an explosion being averted.

It has been repeatedly stated that ecology, in contrast to the economy, requires not 10-year planning, but at a minimum 50-year planning, long-range, extraordinary

decisions. But we have people who think this way: just let me get through this quarter, and maybe the next one, too... The plan at any price, just as long as one can turn in a good report and not appear to be lagging behind.

Recently a good essay on Pittsburgh by Vladimir Peskov appeared in KOMSOMOLSKAYA PRAVDA. In America there was very strong resistance from companies when Pittsburgh's metal production facilities began to be shut down for environmental reasons. Pittsburgh is to America as Magnitogorsk is to us. Of course this was a blow to a large number of firms, and the technocrats there resisted just as ours are doing now. Yet over there other levers were operating. Public pressure proved to be stronger than the resistance. It forced billions (two or three billion dollars) in expenditures to make Pittsburgh a city with a clear sky and non-polluting industries. We need to do the same thing.

At this time we have an ecological program extending to the year 2005. We have a USSR Supreme Soviet resolution from 27 November 1989 which requires that the ecological situation be normalized in every city by 1995. That is splendid, but unrealistic. But at least it is a goal. We have looked over plans made by the Ministry of Metallurgy, for instance. Reduction in pollution is planned in Dnepropetrovsk, Dneprodzerzhinsk, Mariupol and Zaporozhye, and there are plans for a parallel reduction of pollution in Krivoy Rog. Krivoy Rog today releases 1.380 million metric tons of pollutants a year. Not counting an additional one million tons of so-called unorganized emissions, i.e. when blasting takes place once a week dust is raised. Every Friday in Krivoy Rog 5,000-6,000 people, including bedfast elderly people and children, are put out on the street for several hours so that blasting can be done in a nearby open-pit mine, so that nothing will happen to them. Can you imagine that situation?

Thus, the Ministry of Metallurgy plans to reduce 1.380 million metric tons of pollutants to 700,000 by the year 2005. That means that in 2005 the ecological situation in Krivoy Rog will be worse by a factor of two than it presently is in Mariupol, Zaporozhye and Dnepropetrovsk. So let us explain that honestly to the people of Krivoy Rog. And we are talking about a time 15 years from now. Life can be planned for five years, or for seven to ten at the maximum. So what do we do—put Krivoy Rog on a rotating shift system? No, of course not, no one is seriously considering that. So I posed this question to Kachanovskiy, Ukrainian Council of Ministers deputy chairman (though he is no longer in that position): what are they going to do about Krivoy Rog? He replied: "That is not ours, it is all under Union jurisdiction; nothing is up to us." But it is in their republic! I met with Serafim Vasilyevich Kolpakov, minister of metallurgy, and asked: what is going to happen to Krivoy Rog? And he looked at me with the look of a man who has seen much in life, a look that said: "Young man, neither you nor I is going to be minister in 2005." His attention is focused on the current quarterly plan, and he may give some thought to the next quarter...

Such is life. Kolpakov is neither bad nor good, he is simply steering by the coordinates of a system in which it is only possible to think in terms of one or two quarters.

We need a completely different system of thinking, a different system of responsibility to the people.

(Editor's note: We hope that publishing this article by N. Vorontsov will prompt those who are developing this sort of technologies to give him some answers. For are they not their own enemies, and the enemies of their children and grandchildren? What is the logic behind their actions? That is what we would like to know.)

Goskompriroda Subordination Said To Foster Conflicts of Interest

91WN0062B Moscow TRUD in Russian 1 Nov 90 p 2

[Article by P. Penezhko; "A 'Kept' Impact Assessment Commission, or Who Is Paying USSR Goskompriroda and for What?"]

[Text] Can the labor collective of a pulp-and-paper combine pay extra "for adherence to principles" to public-health and fish-protection workers? In principle one can find some kind of sly method for making doctors and inspectors materially interested in not being too zealous about monitoring waste and the number of ruined fish.

Smugglers can probably establish a "joint" enterprise with customs workers in order to increase the mobility of their goods. However, in our country the law-enforcement organs vigilantly keep track of such initiatives, calling them quite ill-advised. But all this is at the local level, at the grass-roots, so to speak. And if something similar happens somewhere higher up, at the level of ministers, state committees and various very new associations? We have not yet heard anything similar from this Olympus, although there have already been quite a few occasions. The people of Rostov recently encountered one of them when they went to the capital to demand an independent ecological impact assessment on a nuclear power plant planned for the banks of the Tsimlyansk Water Reservoir.

Earlier they had used their own resources to hold an impact assessment of this kind, and they established that the project did not meet safety requirements. Remember, the power plant was to be located on the banks of the Tsimlyansk Water Reservoir, and for two million residents of the region there is no other source of water supply. Moreover, nearly all of Russia's southern granary is irrigated by water from the Don.

The arguments would seem to be very serious ones. But at the union ministry they encountered a surprising response. Ye. Ignatenko, the head of Minatomenergoprom's (Ministry of the Atomic Power Industry) main administration, came to Rostov with an offer of clean water to be diverted from the northern rivers, in exchange for the people's agreement not to interfere with

the construction of the power plant. After him came V. Ponomarev and A. Arutyunyan, staff members from the Institute for the Radiation Safety of Atomic Power Plants, seemingly for an impact assessment on the project, but most of their time they spent advertising computers to the local population.

At this point the population began to suspect something wrong, and they hurried about organizing rallies and sending delegates to Moscow, to USSR Goskompriroda (USSR State Environmental Protection Committee), seriously believing that it has the most independent experts, who are the farthest removed from commercial interests. The Rostov people attempted to show that the region did not even have enough water to supply all four units of the AES [nuclear electric power station] being built.

That is precisely why you need pure northern water, said Ye. Minayev, deputy chairman of USSR Goskompriroda, along with his subordinate Yu. Maksimenko, as together they tried to to convince the delegates. And, they added, the water-hungry AES will force the government willy-nilly to finish building the Volga-Don-2 Canal.

But we ourselves spoke out against the canal, said the delegates, completely at a loss; they had stopped that project along with the diversion of northern waters!

That is not your concern, the guardians of nature consoled them; just as they put a halt to it, they will start it up again.

Later I asked Minayev: is the digging of the canal continuing on the quiet? Yevgeniy Vladimirovich (Minayev) only lifted his eyes to the ceiling enigmatically. In general, he is a great diplomat. Ten years ago as a deputy chief of Glavgosekspertiza (Main State Assessment Commission) of USSR Gosstroy, Minayev decisively rejected an alternative site for the Rostov Power Plant which would have doubled its distance from the city. Closer to the AES, he said, the citizens would be warmer and they would find it more convenient to get to work.

Later, despite all the protests and criticism, Minayev managed to approve the plan for Moscow's Northern TETs [Heat and Electric Power Station] even without a protective zone around it. And now this frenzied curator of nature is organizing all kinds of "independent" impact assessment commissions within the new apparatus.

Who will be doing this work? The self-financing Transsonik Scientific-Production Association, which has its headquarters in Odessa. The state has already allocated 900,000 rubles for this.

Allocated by Goskompriroda?, I ask Minayev.

No. USSR Promstroybank is doing the financing—from the project estimate.

How is that possible? The funds for the construction of an AES and its ecological impact assessment are coming out of the same pocket? Moreover, this is not even an impact assessment, but rather an "ecological substantiation," as they say in a banking parlance. That is, the goal of this expensive enterprise is not to analyze this project in detail but to explain to stupid people how good it will be for them when construction of all four units is completed.

And what is this Transsonik Association? What kind of powerful scientific personnel is it recruiting? It turns out that the association has an agency in Moscow, and its director is V. Yevdokimov, who is, incidentally, a former employee of Atomenergo [Ministry of Atomic Power].

For the first while our meeting with Vladimir Grigoryevich (Yevdokimov) was very uncomfortable. He turned on a tape recorder and literally pelted me with questions: how and why is there such interest in Transsonik? But then the conversation eased a bit, and I heard the familiar words about the need to evaluate humanely the effect of energy facilities on the environment.

In the United States, Vladimir Grigoryevich noted with regret, similar work costs from $10-50 million.

But after all, over there they probably carry out the ecological study "before" and not "after."

Good Lord, what is the difference?, said the "independent" expert as he condescendingly brushed away the thought.

And, indeed, there is almost none, because the the Transsonik experts are not given access to the technical designs of the project. For example, they make a rough calculation of the background radiation beyond the plant's fence. And then they look at how to compensate people for having a dangerous neighbor: with sociocultural facilities? Roads? With kopecks per kilowatt?

That is useful. But one must remember that the Americans have set themselves more difficult tasks. Especially after Three Mile Island. And it would not hurt us to do the same after Chernobyl. For example, to figure out how serious water and air pollution added to background radiation will influence the life span. However, Transsonik is not making prognoses of this kind.

However, as for what kind of scientific forces Transsonik has recruited, Yevdokimov limited himself to the most general description. He says it has attracted quite serious personnel. Then Minayev familiarized me with a sample of their product: an ecological substantiation study for the Bashkir AES. Tens of names of which, no matter how hard I try, I cannot remember a single one which is even slightly well known on the ecological front. I am willing to take their word that these are serious scientific workers, but why, nonetheless, is their labor paid for from the estimate for the plant's construction? Only because they have a connection with the "atomic" agency?

And also because Transsonik's ecological activities are reliably linked through commercial ties to Goskompriroda. As a Western lawyer would say: "A consolidation of the state apparatus and entrepreneurial interests forbidden by the law (in their country, of course) is taking place," and he would present the court with "Regulations Concerning Joint Enterprises," signed by the Odessa chief V. Yevdokimov, and Yu. Maksimenko, the deputy of Ye. Minayev.

They have at their disposal a press and a current account in Promstoybank, from which they also draw funds for ecological substantiation studies, impact evaluations and the preparation of documents. At the same time they are taking a large number of orders, keeping track of progress made in the fulfillment of agreements and making representations..."at all the state institutions, enterprises and public organizations, as well as with foreign partners."

What is this "making representations," on a khozraschet (self-financing) basis? To put it more simply—they are cooperating with "foreign partners." After all, Transsonik has its hand in the same "pocket" as Goskompriroda and the International Fuel and Energy Association, in the establishment of which it invested a quarter of a million rubles. The association was established by the USSR Council of Ministers "for the maximum possible development of international ties for the purpose of concentrating the scientific and technical potential of various countries on the resolution of the most important inter-sector problems in the fuel and energy complex."

That is, the atomic Transsonik, thanks to forms of the International Fuel and Energy Association, now imparts to its work an international attractiveness, and it would seem that this claim is not so inoffensive as it seems at first glance. As the scandalous experience of joint projects in the construction of chemical giants in Western Siberia has shown, our partners are enticed not only by the cheapness of our natural resources and manpower but also by the extremely low level of ecological requirements for projects. And here we are now presenting the International Fuel and Energy Association as an initiator of new, even more grandiose projects (that is what is was established for!). Its co-founder Transsonic "cooks up" for them the substantiation studies, like blini, while its business partner, Goskompriroda, has nothing to do except stamp its agreement and receive part of the "joint" honorarium.

For this reason, let Yevdokimov and Maksimenko not take offense, but their activities remind us painfully of an attempt to subordinate Goskompriroda to the laws of the "regulated market." Moreover, they are taking the regulation upon themselves. And the the first results of the joint commercial efforts are already at hand. The Latin abbreviation for the International Fuel and Energy Association adorns the title page of the first volume of publicity substantiations for the Bashkir AES project. After studying it carefully, the most fervent opponent of nuclear power in the republic will inevitably come to the conclusion that for all his problems caused by industrial pollutants, there is no better solution than "background radiation which does not exceed the norms."

That is exactly how our agencies answer the legitimate demands of citizens: if you want a washing machine, then agree to a new battery of coke ovens in Nizhniy Tagil. You will not get analgin until we start up a BVK (protein-vitamin concentrate) production unit. Take one or the other: either unlimited subscriptions to newspapers and magazines or a clean Lake Onega and Lake Ladoga.

In short, the agencies have mounted a counterattack. And its beginning was signaled, no matter how strange it may seem, by a USSR Council of Ministers resolution adopted in February of the current year, with a name which would seem to reflect a deep love of mankind: "Concerning Urgent Measures To Normalize the Consumer Market, the Circulation of Money and To Strengthen State Monitoring of Prices."

But do not be surprised if in point 12 you find these words: "...under the pretext of inadequate ecological safety and for other reasons there continues—based on decisions by republic and local organs—the practice of illegally interrupting or halting the operations of enterprises under union jurisdiction, including their subdivisions and production units in the space industry, the medical products industry, the pulp-and-paper industry, metallurgy and other branches of industry; this disrupts the fulfillment of production plans, including those for consumer goods which are to be used by many other enterprises in the country. Establish that interrupting or halting their operations is permitted in exceptional cases and only with permission granted in advance by the USSR Council of Ministers."

Thus on the one hand, commercial temptation, and on the other, an ukase from above. With the first alternative you set the price for yourself. With the second, however, there is an absolute dead end because Goskompriroda is directly subordinate to the USSR Council of Ministers.

It would seem obvious that for Goskompriroda, like its foreign counterparts, to cope effectively with its tasks, it needs to be set above the agencies; that is, obviously it must be made directly subordinate to the President. But in the highest echelons of power there is no talk of this yet.

And in all of this story about the fading scandal surrounding the Rostov AES, the only somewhat hopeful news is that under pressure from the public the oblast soviet declared a freeze on its construction, and the decision was supported by the Council of Ministers of the Russian Federation.

But now we face the so-called collision of norms, in which the organs of local self-determination throw down a challenge to the supreme executive authority.

Is it one more crisis provoked by the apparatus at a time so rich in crises?

National Government Urged Not To Give Local Bodies Control Over Parks

91WN0062A Moscow IZVESTIYA in Russian 4 Nov 90 Union Edition p 3

[Article by K. Smirnov: "Do Not Let Baykal Go for a Pittance"; first paragraph is source introduction]

[Text] An All-Union conference called "USSR National Parks—Their Present and Future" has come to an end in Novgorod. Three hundred of the participants signed a letter expressing their concern to the President of the Soviet Union and to the supreme soviets of the USSR and of the union republics. Its message was: put a stop to the selling off of the nation's natural heritage, which is of value to the planet and to all mankind.

There is a barometer which measures accurately the concern of a people and a state for their future: how much land they set aside for parks. In this regard our country had quite good traditions and scientific support, but departmental dictates made it impossible to achieve a civilized level. There were great hopes that with perestroyka and the dismantling of the command-administrative system, the areas under protection would be expanded and more attention would be given to them.

Scientists, specialists and other workers employed by the parks and wildlife sanctuaries think that these hopes have been dashed by the fact that the legislative activity of the perestroyka period absolutely fails to take into account the specific features of park management.

With the transfer to the local soviets of all rights to land and its resources there is an intolerable tendency on the part of local organs of authority to redraw the boundaries of parks, each of which has significance—ranging from republic-level significance at the very least, to union-level or even international significance. Enterprising people have begun to sniff around the park system. Attempts are being made to include park land in every kind of commercial association, enterprise, consortium, etc.

Under threat is the very idea of the long-term program to develop a network of specially-protected natural areas in the period up to 2000, which is being worked out in accordance with a resolution of the USSR Supreme Soviet concerning urgent measures for the country's ecological recovery. Land-owners and land-users are opposing with increasing frequency the establishment of new parks, nature preserves, wildlife sancturaries and monuments of nature; they are demanding enormous sums in exchange for giving up land for these purposes.

The participants at the All-Union Conference appealed to the USSR President to publish a presidential ukase halting all actions which have the effect of closing state wildlife sanctuaries or national parks, reducing their area or handing them over to local organs of authority.

When we carry to the absurd the noble idea of national sovereignty and local self-determination, when we try to divide into parts rivers which flow through various republics and even clouds which fly over sovereign territories, then we know where to look for an analogy—in the Biblical parable about the two women who could not share one child or in the fantastic prediction made by the writer M. Ilin 55 years ago. He imagined that a way would be found to make the weather and took out a patent on it: "The prices for rain, fog, clouds, snow, for an end to rain, to snow and to fog grow and grow. The population has to pay for what it never paid for before, for that small thing which used to come by itself, for free."

We have not come to that point yet, but we are getting there. And in 20 years we have not yet resolved the problem—which can be solved—of payment for natural resources and for damage to them. However, park lands are not part of this utilitarian market circle. Baykal is as priceless as the Hermitage [Museum in Leningrad].

RSFSR Environmental Protection Officials Request Resolution of Authority Issues

91WN0042A Moscow EKONOMIKA I ZHIZN in Russian No 42, Oct 90 p 9

["An Open Letter to I. S. Silayev, RSFSR Council of Ministers Chairman"]

[Text] **Respected Ivan Stepanovich!**

Today an extremely frightening ecological situation has been created on the territory of the RSFSR, one that threatens us with irrevocable consequences. The lives of the peoples and nationalities that live within the RSFSR are at stake.

We, the participants of a Russian conference of republic (ASSR), kray and oblast environmental protection committee chairmen, support the resolution of the RSFSR Council of Ministers on the creation of an ecological resource block, which we hope will stabilize and improve the ecological situation in the republic. We are convinced that the leading role in this must be assigned to the RSFSR State Committee on Ecology and the Utilization of Natural Resources and its local organs.

However, the fact that the ministries and departments that utilize natural resources, including those that are members of the ecological block, retain along with economic functions, the functions of government administration, regulation and environmental protection, is today a cause for concern.

We feel that this state of affairs is impermissible. We earnestly request that you, after final examination and confirmation of the organizational structure of the RFSFR State Committee on Ecology and the Utilization

of Natural Resources and its local organs, accept our proposals on the functions of the committees, the basic one being the principle that government administration, regulation and protection of the utilization of natural resources be transferred to them from all of the ministries and departments, including those that are members of the ecological resource block.

We consider the main purpose of the republic (ASSR), kray and oblast committee, as a single organ, to be the implementation of government administration and regulation of compliance with environmental protection legislation and the assurance of the optimal utilization of natural resources. For the fulfillment of this task, we propose conferring upon the committees on the ecology and the utilization of natural resources the following functions:

- introducing monitoring and effective regulation of environmental quality, based on an integrated ecological information system;
- introducing a registry of natural resources;
- developing and coordinating integrated plans for environmental protection and the rational utilization of natural resources;
- conducting ecological impact assessments of plans for new construction, reconstruction, enterprise expansion, new technologies, products, equipment, integrated plans for land development, programs for the utilization of mineral and raw material resources;
- the examination and confirmation of ecological standards for each consumer of natural resources, the coordination of limits on the consumption of natural resources, of standards for disposal (discard) of harmful toxic substances into the surrounding environment, the siting of public utilities;
- developing and submitting for confirmation by local Soviets standards for fees to be charged for the utilization of natural resources, as well as for the pollution of the environment (standard, extra);
- participation in the formulation of taxation and financial policy for the utilization of natural resources, submitting proposals for increasing (decreasing) taxation rates, introducing financial privileges for enterprises, including joint ventures, organizations, cooperatives and other production and scientific subdivisions, depending on their operations and their effectiveness in the resolution of ecological problems;
- organizing a regulatory system for the timely payment for standard (extra) disposal (discard), for the siting of wastes, for the receipt of fines and suits for the pollution of the environment. Assuring the development and preparation of proposals for the utilization of environmental protection funds;
- introducing claims work, examining administrative responsibility for violations of environmental protection legislation;
- implementing government monitoring of compliance with environmental protection legislation, rules and standards for the utilization of natural resources throughout all of the ecospheres, including laboratory monitoring through the use of instruments on all lands, enterprises and organizations, including the military-industrial complex;
- examining and coordinating ecological passports and annual enterprise and organization plans for environmental protection;
- participating in the development of comprehensive plans for land and for branches of the national economy geared towards improving the ecological situation in the region;
- forming a cooperative system including all of the departmental laboratories, based on an integrated method of management, in order to monitor environmental pollution;
- implementing environmental protection work in close cooperation with public organizations and movements, regularly informing the population on the state of the ecological situation, implementing the propagandizing of ecological knowledge;
- organizing radiological, toxicological and biological monitoring, as well as monitoring of the utilization, storage and transport of pesticides;
- assuring the fulfillment on its territory of the international obligations and agreements that have been adopted, cooperation with international organizations, movements and bordering foreign territories in protecting the environment;
- introducing proposals for the creations of specially preserved territories (nature preserves [zapovedniki, zakazniki], national parks, natural monuments) and implementing monitoring of their operations.

Besides this, we feel it is necessary that the departments responsible for the economic operations that affect the state of natural resources lose their government regulatory functions. And that their corresponding staffs and material-technical base should be transferred to the committees on ecology and the utilization of natural resources so that they can organize government regulatory subdivisions.

The fisheries conservation system of the USSR Ministry of Fisheries should be eliminated, and the staffs should be transferred to subdivisions of Rosrybkhoz in order to organize conservation departments, and to the committees on ecology and the utilization of natural resources in order to organize subdivisions for government regulation, utilization and conservation of fisheries reserves, as well. Besides this, kray and oblast hunting administrations should also transfer their functions of government regulation of the utilization and conservation of the animal world and the corresponding staff to the committees on ecology and the utilization of natural resources as well, while the departmental preservation functions should be performed by the hunting industry consumers.

The Committee on Ecology and the Utilization of Natural Resources, with the goal of providing the opportunity to expose violations of established standards for the disposal (discard) of toxic substances and of compliance with legal requirements through the use of sanctions, and

also for conducting calibrations of instrumental methods for measuring the disposal (discard) of toxic substances should be empowered within its structure and in the necessary order to conduct inspections of laboratory monitoring with its structural subdivisions in the territorial committees.

We feel that it is necessary to carry out the following first-priority measures.

Concentrate the functions of government administration and regulation of environmental protection and the utilization of natural resources on the territory of the republic in the RFSFR Committees on Ecology and the Utilization of Natural Resources.

Resolve the question of transferring local organs of the RFSFR State Committee on Ecology and the Utilization of Natural Resources [Gosekologiya] to the republic budget. The RFSFR Ministry of Finances should introduce changes in the "Listing of Special Substances" for the RFSFR Gosekologiya.

Examine the question of creating the production conditions necessary for the committees on ecology to operate normally, and for the centralized allotment of capital investments to the construction of housing and to the committees' production base.

Equip the committees with material-technical resources, the first priority being automobiles, portable monitoring devices and laboratory equipment, ordered through the government under separate lines in Gosplan, Gossnab, and the Ministry of Finances.

Urgently develop and ratify a resolution on the committee and fundamental laws on environmental protection in the republic.

We feel that the RFSFR Council of Ministers Committee on Water Resource Managment, formed in accordance with the RFSFR Council of Ministers resolution of August 13, 1990 (No. 299) should not duplicate the work of the RFSFR State Environmental Protection Committee and its local structural subdivisions.

With the goal of eliminating disunity and parallelism in operations and in order to assure real government regulation of the utilization of natural resources, we feel that the only acceptable solution is to transfer in their entirety the divisions of the former RFSFR Ministry of Land Reclamation and Water Resource Management that deal with the complete utilization of water resources and with their material base to oblast, kray and republic (ASSR) environmental protection committees.

The Committee on Water Resource Management should include in its obligations only economic operations functions.

On behalf of conference participants:

V. AGEYEV, chairman, Rostov Oblast Committee on Environmental Protection. V. BAKUNIN, chairman, Chelyabinsk Oblast Committee on Environmental Protection. YE. VASILYUK, chairman, Kurgansk Oblast Committee on Environmental Protection. N. VASILYEV, deputy chairman, Buryat ASSR State Committee on Environmental Protection. V. VOYTSYTSKIY, chairman, Saratov Oblast Committee on Environmental Protection. V. GOLENKO, chairman, Khakass Autonomous Oblast Committee on Environmental Protection. O. DOROSHCHENKOV, chairman, Altay Kray Committee on Environmental Protection. YE. IVONA, chairman, Adyge Autonomous Oblast Committee on Environmental Protection. V. IDIMECHEV, chairman, Krasnoyarsk Kray Committee on Environmental Protection. V. KAZANTSEV, chairman, Perm Oblast Committee on Environmental Protection. A. KROKHMAL, chairman, Karachayevo-Cherkess Autonomous Oblast Committee on Environmental Protection. A. KULIKOV, chairman, Orenburg Oblast Committee on Environmental Protection. A. MEDVEDEV, chairman, Maritime Kray Committee on Environmental Protection. A. METELEV, chairman, Jewish Autonomous Oblast Committee on Environmental Protection. N. NOSOVTSEV, chairman, Amur Oblast Committee on Environmental Protection. A. OSTROVSKIY, chairman, Chita Oblast Committee on Environmental Protection. A. PETRIK, chairman, Novosibirsk Oblast Committee on Environmental Protection. A. POLOVINKO, chairman, Krasnodar Kray Committee on Environmental Protection. V. SAFAROV, chairman, Bashkir ASSR Committee on Environmental Protection. V. SKACHKOV, deputy chairman, Khabarovsk Kray Committee on Environmental Protection. ZH. STROKACH, chairman, Chuvash ASSR Committee on Environmental Protection. V. SEMENYAK, chairman, Omsk Oblast Committee on Environmental Protection. N. TRUNOV, chairman, Gorno-Altay Autonomous Oblast Committee on Environmental Protection. V. TSIKEYEV, chairman, Kalmyk ASSR State Committee on Environmental Protection. N. YAKOVLEV, chairman, Stavropol Kray Committee on Environmental Protection.

Deputy Minister Urges Regulation of Industrial Pollution Impact on Public Health

91WN0120A Moscow PRAVDA in Russian 14 Nov 90 Second Edition p 6

[Interview with USSR Chief State Sanitation Physician and USSR Deputy Minister of Health A. Kondrusev, by N. Gogol: "Poison Without Illusions: Who Will Guarantee the Right to Health?"]

[Text] **One of our readers from Dnepropetrovsk is convinced that he became disabled as a result of many years of mercury poisoning while he was working in a harmful production area. But he cannot prove that he is correct either at the enterprise or in court... There has been no ending to the battles surrounding the plant engaged in the production of protein vitamin concentrates in Kirishi. The public has demanded the closing down of the plant, but, according to specialists from VNIIsintezbelok [All-Union**

Scientific-Research Institute of Protein Synthesis], the detrimental effect of production on the environment has been greatly exaggerated, and, in their opinion, the plant must continue operating... Who will judge these and many other disputes? My conversational partner asserts that a critical need has developed for enacting the principles of sanitation legislation for the USSR and the union republics, without which the resolution of the tremendous number of problems that are threatening society and specific individuals is impossible. I give the floor to A. Kondrusev, USSR Chief State Sanitation Physician, USSR Deputy Minister of Health.

[A. Kondrusev] Among the 60 most highly developed countries in the world, our country is in 54th place with regard to life expectancy for men and 47th place for women. Moreover, the situation is worsening from year to year. During the past 20 years the overall mortality rate of the population increased from 8.2 to 10.1 per 1000 inhabitants. The infant mortality rate is 22.7 per 1000 live births. One of the important reasons for the increased disease rate and the low life expectancy is the extremely unsatisfactory state of sanitation, as well as the ecological situation that has developed in the USSR.

In our country more than 40 million people live in cities where the level of pollution of the atmospheric air sometimes is 10 times higher than the standard. As a result, in those cities the disease rate of the population for certain diseases is higher than the nationwide indicator by a factor of 1.5-2 or more.

According to data provided by the laboratories at sanitation and epidemiology stations, every fourth sampling of the drinking water in the water-supply system shows that, with regard to chemical readings, the water fails to meet the sanitation requirements and can be dangerous to the health.

A substantial influence is exerted on the population's health by improper nutrition and the quality of food products. The results of analyses of food products attest to the fact that a considerable number of them are contaminated by foreign substances that are dangerous to the health.

Can it be that no one in our country is working on these problems? No, the USSR operates 4478 sanitation and epidemiology stations and 546 decontamination stations, it has 65,000 specialists...

[N. Gogol] Why, then, hasn't their work made our life, if we can express it this way, ecologically safe?

[A. Kondrusev] One of the main reasons is that the country lacks a legislative act regulating the relations in the area of guaranteeing sanitation and epidemiological safety, as a single legal basis.

In the legislative acts that are currently in effect, there is no legal assertion of the responsibility borne by all the state agencies for failure to fulfill the requirements of the normative documents, and there is a lack of any legal guarantees for the activities of, or the legal protection of, officials, including the main state sanitation physicians.

In the Principles of the Legislation of the USSR and the Union Republic With Regard to Public Health, the articles that pertain to the country's sanitation and epidemiological safety are, for the most part, of a declarative nature. The fundamental questions of protecting people's health are regulated, practically speaking, by legally binding acts—governmental decrees or the government-approved Statute Governing State Sanitation Inspection in the USSR—but the country lacks an effective mechanism for administering the sanitation-and-epidemiological and radiation situation. As a consequence, the governmental decrees governing the protection of the environment, the improvement of working and everyday living conditions, etc., which defined the specific tasks for the ministries and departments and for the Councils of Ministers of the union republics, were executed in an extremely unsatisfactory manner. They did not have any material, economic, or legal foundation under them.

Many aspects of the law and legally binding acts that are in effect are now obsolete and fail to reflect the changes in the sanitation-and-epidemiological and radiation situation in the country, which has become greatly aggravated as a result of the Chernobyl accident, or the threat of the spread of AIDS.

Putting it more succinctly, there is now a vital need to create a nationwide legislative act that would resolve these and other questions. The work on this act has been carried out for the past three years by a commission under the USSR Ministry of Health.

The resultant draft of the principles of sanitation legislation for the USSR and the union republics proceeds from the assumption that the guaranteeing of the sanitation-and-epidemiological and radiation safety of the population acts as a guarantee of the constitutional right of USSR citizens to the protection of their health.

To prevent this right from becoming just the latest in a series of declarations, a number of conditions have been stipulated. For example, the right of citizens to receive complete, reliable information concerning the state of the environment and the epidemiological situation, and their influence upon people's health, and concerning the results of hygienic and other special surveys. Furthermore, the right of citizens to participate in the preparation, implementation, and monitoring of the fulfillment of decisions, if their implementation is linked with an effect exerted on the public's health or on the environment. The right of citizens to be compensated for the damages linked with the impairment of their health by all types of effects exerted by the projects in the environment. And, finally, the opportunity to complain directly to the court concerning the actions of state agencies and officials who infringe upon these rights.

For the first time in the practice of Soviet legislation, provision is made for a system of measures of legal and

economic responsibility for the damages inflicted on people's health as a consequence of the unfavorable factors in the environment. Also, there have been formulated for the first time the guarantees of the independence of the main state sanitation physicians, which independence is assured, in particular, by the banning of improper interference in their activities and by the establishment of responsibility for violating it.

A new system has been proposed for the imposition of fines—their size depends not upon the level of the main state sanitation physician (of the USSR, the union and autonomous republics, the krays and oblasts, cities, and rayons), as has been the case up until now, but, instead, it is established in accordance with the violation. There has been a sharp increase in the size of the fine imposed on officials (up to 1000 rubles) and on citizens (up to 200 rubles).

[N. Gogol] With the increase in the independence of the republics and the corresponding increase in the role played by the republic ministries of health, won't a law that has been engendered in Moscow be perceived as an alien, unnecessary one?

[A. Kondrusev] Well, first of all, the law was not created behind the scenes. In response to the draft of the Principles that we sent to the outlying areas, we received replies by the Councils of Ministers of eleven republics (we did not receive any materials from Georgia, Lithuania, Latvia, or Estonia) and the ministries of health of all the union republics. Practically all the republics that took part in the discussion of the legislative bill were in favor of preserving the country's single sanitation-and-epidemiological service with vertical subordination to a superior agency and to the Soviets of People's Deputies, and this has a completely sound foundation under it.

Take, for example, the ecological problems. Frequently the scope of these problems extends beyond the confines of a particular region or republic. Consequently, in order to resolve them it is necessary to centralize the efforts and means. Or take such a problem as the spread of AIDS. Confining it to a republic-level ministry of health is equivalent to deliberately depriving one's own patients of the necessary skilled aid.

Without a doubt, in guaranteeing the public's sanitation-and-epidemiological safety there are a large number of questions that ought to be resolved on a nationwide level. For example, such a necessary thing as the organizing of nationwide registries and the administration of the state system of hygienic regulation and registration of chemicals. The resolution of these questions at a nationwide level will preclude the duplication in the union republics, and will guarantee the high scientific level of research and an economizing of the funds.

It would be desirable also to conduct at a nationwide level the planning of the fundamental scientific research, thus making it possible to save tremendous amounts of money for the country as a whole, and also to organize emergency aid in the event that any emergency situations develop, in areas of an ecological disaster, etc.

In this process, of course, a considerable number of questions must move into the jurisdiction of the republics, which will resolve them with a consideration of the peculiarities of their own regions, on the basis of a Union Treaty.

[N. Gogol] The implementation of any law requires additional financing, and the proposed draft is no exception. Won't the expenditures prove to be too great for the state treasury?

[A. Kondrusev] We have made the necessary computations. Additional expenses will be required for the implementation of the right of the citizens to receive information, for the legal protection of their rights, and for the pledges to create the conditions for forming a healthy way of life. However, even the preliminary estimate for the introduction of this law presupposes a considerable economic effect as a result of a sharp increase in the sizes of the fine, the collection of damages to compensate for the violation of sanitation legislation, etc.

But the basic effect can be expected as a result of the reduction in the disease rate (payment of doctors' certifications, losses in production), the reduction of expenditures to eliminate the consequences of epidemics, poisonings, and accidents, to improve the working conditions, everyday-living and recreational conditions, and, consequently, people's health.

I want to note that the enactment of sanitation legislation is taking on special immediacy under conditions of the developing market relations, the assimilation of various management forms (leasing, small enterprises, small farms), and the increasing of the independence of each producer. If the changes in the economy are not followed by the improvement of sanitation legislation, the ecological situation in the country can become uncontrollable.

Salykov Reports UNEP Plans for Environmental Project Assistance

91WN0067A Moscow IZVESTIYA in Russian 3 Nov 90 Union Edition p 4

[Interview with K.S. Salykov, head of delegation of the USSR Supreme Soviet Committee on Questions of Ecology and Rational Use of Natural Resources, by G. Stepanov, under the rubric "IZVESTIYA Interview"; date, place, and occasion not specified]

[Text] **The ecological disasters which have turned enormous areas of the Soviet Union into empty, dying lands have never been strictly its own internal affair. The international community has long been seriously concerned about the continuing destruction of nature in the regions of Lake Baykal, the Aral Sea, and the Chernobyl AES [Nuclear Electric Power Station]. But forms of real help by the international community have only begun to**

take shape in recent years. The recent trip to Kenya by a delegation of the USSR Supreme Soviet Committee on Questions of Ecology and Rational Use of Natural Resources, made at the invitation of the executive director of the UN Environmental Program (UNEP), Mustafa Tolba, was devoted to increasing the effectiveness of this help. The IZVESTIYA correspondent asked the head of the delegation, K.S. Salykov, to tell about the results of the cooperation with UNEP.

[Salykov] In the fall of 1989, M. Tolba visited the USSR. It was at that time that I asked him to include the problem of the Aral in his program. In January 1990 M. Tolba and V.F. Petrovskiy, the USSR deputy minister of foreign affairs, signed a document on cooperation in formulating a plan of action to restore the Aral Sea.

We are now holding a competition to develop a plan for saving the Aral, and already more than 200 works of Soviet scientists and specialists have been submitted. Several of the best of them will be selected before the end of this year, and an international group of experts under the aegis of UNEP will study them in early 1991.

[Stepanov] How was the trip to Kenya, and what were its results?

[Salykov] Working meetings were held at the UNEP staff headquarters in Nairobi with M. Tolba and his deputies and leaders of the main UNEP subdivisions. We were shown programs conducted by UNEP such as, for example, the Global Natural Resources Data Base, the International Environmental Information System, and others. As a result of consultations which ended with the signing of a joint protocol, we reached several basic agreements. First, the UNEP leadership agreed that the Aral Project must be accelerated and its legal status enhanced. Thus there appeared in the UNEP structure the Center for the Aral Sea, and its staff will not be individual experts, but rather a permanent working group of specialists. The project will be substantially expanded by inclusion in it of several topics that were omitted initially. On our part, a number of additional work-performing organizations will also be included in it, for example the department for emergency situations, which was recently created in the Council of Ministers. UNESCO and other UN organizations may possibly make their contribution to carrying out the project. The amount of financial investment in the project will be increased and our ecology center created in the city of Nukus near the Aral will also receive material aid from UNEP. The main thing we have to do is eliminate the consequences of desertification in this region.

Secondly, UNEP agreed to help us overcome the consequences of the accident at the Chernobyl AES. A detailed joint plan of action will be formulated in the first half of 1991. Thirdly, UNEP will take part in work to prevent Lake Baykal from becoming polluted. Some countries have already expressed a desire to cooperate with us to perform this task, and UNEP may assume the role of coordinator.

Further Details on Greenpeace Ship Incident

91WN0034A Moscow IZVESTIYA in Russian
15 Oct 90 Union Edition p 4

[Article by Fedor Ivanov, IZVESTIYA special correspondent reporting from the area of the Kola Bay, Murmansk: "Greenpeace Is Being Evicted From the USSR"]

[Text] Two days have passed since the ship Greenpeace, which was detained at Novaya Zemlya on 8 October, has been moored at the Kola Bay in the area of Kuvshinskaya Salma, at the marine border base. After a thorough study of documents and reports submitted by the commander of the border vessel "Imeni XXVI Syezda KPSS," on 12 October a commission of the USSR Prosecutor's Office and the KGB began the interrogation of witnesses....

What is the essence of the conflict between Greenpeace and the border guards?

Greenpeace, which belongs to an ecological organization of the same name, spent more than two weeks in Soviet territorial waters, entering the ports of Murmansk and Arkhangelsk. In the course of these trips it was visited by thousands of people: representatives of the local authorities, ecological movements and organizations, and private citizens. Throughout its entire trip it was accompanied by the border guard vessel "Imeni XXVI Syezda KPSS."

According to the testimony of ship Commander S. Gritsenko, no serious incidents took place until 7 October. It is true that on 3 October, after leaving Arkhangelsk, the ship began to maneuver and put lifeboats on the water. The ship's commander warned by radio that Greenpeace was violating the rules governing navigation in Soviet territorial waters. After a while, the lifeboats were raised and the ship continued on its way to Naryan-Mara. As I was told by Ulrich Jurgens, the skipper of Greenpeace, on that day the ship conducted a practice alarm and the crew worked on alternate rescue operations. On 7 October, after leaving Pechorskaya Guba, almost immediately Greenpeace deviated from the recommended route toward Murmansk and sailed around Kolguyev Island toward the Novaya Zemlya archipelago. After sailing for a while in international waters, the ship entered Soviet territorial waters. N. Gritsenko warned Captain Jurgens that he was violating the border and demanded that the ship return to its indicated itinerary. However, even after Soviet citizens who were aboard the vessel became involved in the discussions, including A. Zolotkov, USSR people's deputy, the captain refused to obey.

Already then the illegal actions of the ecologists could have been stopped quickly. However, a storm broke out and there was virtually no possibility of detaining Greenpeace without an accident. Furthermore, according to N.

Gritsenko, to the very last moment he hoped that the vessel, after going by Novaya Zemlya, would set a course to Murmansk.

The "Imeni XXVI Syezda KPSS" followed a parallel course, thus blocking the approach to Novaya Zemlya. When the closeness between the ships became dangerous, once again Gritsenko requested by the radio of the captain of Greenpeace to announce his intentions. Jurgens answered that he intended to sail to the forbidden land. In answer, Gritsenko reported that he would be forced firmly to prevent such an action.

Soon afterwards, Greenpeace launched four lifeboats which, at great speed, began to maneuver between the ships, worsening a situation which was already bordering on causing an accident. The lifeboats would sailed in the direction of the islands and then turn back. In order to be able to locate the small boats in the dark (by that time it was already night), Gritsenko ordered that search lights and flares be used along the way. It is true, as I was told by members of the Greenpeace crew, that the flares were fired so low above the water that the charges could well have hit the lifeboats and the people in them.

By the time both vessels had approached the Matochkin Shar Strait the situation had turned critical. The border guards sensibly assumed that it would be impossible to stop Greenpeace in a narrow passage without risking a collision. At that time, after communicating with the shore, Gritsenko was ordered to fire a warning shot. The distance between the ships was about 900 meters.

Illuminating the artillery system, so that it could be seen from Greenpeace, Gritsenko ordered that it be loaded and, several minutes later, three shells were fired from one of the guns at a 45-degree angle. Greenpeace immediately stopped its engine and let the ship to drift.

The border guards from their ship sent a boarding party according to the rules. Refuting the data of the initial information received in Moscow by the USSR KGB Border Guards Administration, let me say that the boarding party went aboard Greenpeace without difficulty. At that point, however, it was not allowed to go beyond the open deck. According to the explanation I was given subsequently by the Greenpeace crew, they refused to yield to armed force for the border guards were armed with pistols and automatic pistols. A second and a third group had to be summoned. Only after that the crew retreated to its cabins and the border guards were able to enter into the hold. They quickly occupied the deck cabin and the engine room but were unable to enter immediately the radio compartment. It was locked and, meanwhile, the radioman and the coordinator aboard Greenpeace, Steve Shellhorn, were transmitting by radio the report that the ship had been seized. The military tried to break the door which, eventually, was unlocked from the inside.

The captain and the members of the crew categorically refused to cooperate with the border guards. It was only with the help of Deputy A. Zolotkov that it was established that one of the lifeboats had failed to return. No radio communication with it was possible. Captain Jurgens explained that apparently the four people in the lifeboat had already reached Novaya Zemlya and were quite well-equipped to operate under extreme conditions. It became necessary to communicate with the command of the training grounds in Novaya Zemlya and representatives of the Navy. Several helicopters, launches, and a military aircraft took off.... Unnoticed by the crew of Greenpeace, the four fugitives were brought aboard the border guard ship. They carried bags with soil, video equipment, and film.

On 9 October, the Yenisey border guard tug began to push Greenpeace into the Kola Bay, for Captain Jurgens had refused to sail the ship himself, "since there were armed people aboard." Immediately after making fast, on the evening of 11 October, Greenpeace and the Soviet ship began to discuss the incident at the base of the maritime border command. What can be said now about the initial results? Here is what was reported by M. Shorkin, prosecutor from the USSR Prosecutor's Office, member of the commission:

"We made a detailed study of the circumstances of the detention, and the actions of our ship and reached the conclusion that the border guards were strictly following the law and official instructions. Furthermore, it was thanks to their efficient work that it became possible to prevent an accident and avoid more serious consequences. As acknowledged by the crew of the Greenpeace, the attitude toward the detainees was absolutely correct."

As to the violators, it can already be said that the ship's captain grossly "circumvented" the law on the USSR state borders: he invaded Soviet territorial and even internal waters, refused to obey the demands of the border guards, created threatening situations, entered an area closed to navigation, and landed people on Soviet territory without permission. All of this violates not only Soviet laws but also basic standards of international law.

While the commission was hearing the testimony of the captain of the ship, one of the members of the crew was given the opportunity to communicate with the embassy. After his second meeting with officials, Captain Jurgens refused to communicate anything prior to the arrival of the representative of the embassy of the FRG, the lawyer, and a professional interpreter. The demands which were made, incidentally, were entirely correct in the civilized world. At the time when I was writing this report, however, the commission was still trying to communicate with the captain without third individuals present. In a discussion with me, Jurgens admitted that he had violated the Soviet laws but he also reported the following: first, until that time he was not all that familiar with them; second, the Greenpeace organization deems justified such actions if they are undertaken for the sake of achieving the main objective of the "For a Nuclear-Free World" action. Within himself, Jurgens is

fully prepared to be tried, for this can only publicize the work of his organization even further.

We could end this report at this point. In the course of the discussion with the border guards and the Greenpeace crew however (including Soviet citizens who were on board the ship) it became clear that not once had Greenpeace been officially warned of the prohibition of entering Novaya Zemlya. Yet, from the very beginning of the visit of the "Green" in the USSR it had become known that landing in the area of the nuclear testing grounds in Novaya Zemlya was the end objective of their itinerary! This had been reported by a number of newspapers, including IZVESTIYA. This had been openly discussed at the press conference in Murmansk by the members of the crew themselves. Obviously, taking into consideration the big press campaign, the officials were hesitant openly to say "no." Yet no one could assume responsibility for making a decision.

It is true that now the members of the commission investigating the incident are referring to the fact that Greenpeace submitted no official request whatsoever to enter Novaya Zemlya. Was such the case? Steve Shellhorn, the Greenpeace coordinator, said that in Arkhangelsk they had submitted a detailed request to Admiral F. Gromov, commander of the Northern Fleet. A. Zolotkov, USSR people's deputy, had held a discussion with him prior to boarding the ship. However, no specific answer whatsoever was given....

Furthermore, as it became clear, on 25 September, after the Greenpeace visit had already started, B. Yeltsin, chairman of the RSFSR Supreme Soviet, received and answer from D. Yazov, USSR minister of defense, in which the latter deemed the sailing of the ship to Novaya Zemlya pointless. Nor was the content of this letter brought to the attention of the Greenpeace crew. But then, since an answer had been received, this meant that there also had been a question.

Finally, giving the actions of the border troops their due, as they efficiently obeyed the laws, I wonder whether it was worth it in that case to erect a wall of prohibitions? Would it not have been simpler to allow Greenpeace to sail to Novaya Zemlya, to meet with the members of that organization, and show to them whatever was not related to secrets which affect the security of the country? Perhaps such openness would have helped to achieve the objective pursued by Greenpeace: total termination of nuclear tests throughout the world. Whether this was possible or not, so far under the pretext of secrecy even Soviet journalists and specialists have been unable to visit Novaya Zemlya despite their persistent requests, while deputies were taken there once and, apparently, it was decided that that was enough....

Latest news: It was reported to the editors that Greenpeace has been expelled from the territorial waters of the USSR and is sailing toward Tronso in Norway.

Officials Discuss State of Nuclear Power Industry

LD2911182190 Moscow Domestic Service in Russian 1230 GMT 28 Nov 90

["The Atomic Energy Industry: Arguments and Facts" from the "Impulse" program presented by commentator Andrey Zelentsov with guests Viktor Alekseyevich Sidorenko, corresponding member of the USSR Academy of Sciences and USSR first deputy minister of atomic energy and industry; Boris Vasilyevich Nikipelov, USSR first deputy minister of atomic energy and industry; Yevgeniy Ivanovich Petryayev, USSR deputy minister of power; and (Mikhail Valentinovich Shnytsin), chairman of the trade union committee at Ivanovo TETs-3; place and date not given—recorded]

[Excerpts] [Zelentsov] I hope that through our conversation you will be able to answer some questions currently causing public concern. First, I would like to provide a short introduction to make it clear to our listeners what the USSR Ministry of Atomic Energy and Industry is. This ministry was created in 1989. It is a huge industry, a scientific-technical industry. Perhaps the following facts and figures will give you an idea of the scale of this industry. Enterprises belonging to the ministry are engaged in designing and operating atomic power stations. They are involved in the whole chain of extracting, processing, utilizing, and burying radioactive materials. Enterprises belonging to the ministry manufacture steam generators for atomic icebreakers and vessels. Enterprises belonging to the ministry engage in extracting and enriching uranium, which subsequently goes to atomic power stations in our country and is also sold abroad. Numerous institutes—such as the Kurchatov Institute, the Institute of Theoretical and Experimental Physics in Moscow, and a number of other scientific establishments—are involved in dealing with purely theoretical problems. One of these is thermonuclear fusion. Everyone knows about Tokamak. Tokamak-15 was developed within the framework of the ministry. The industry's foreign trade turnover amounts to $2 billion a year.

There is a growing negative emotional reaction in our country to the use of atomic power stations, in particular to the activities of enterprises engaged in processing of radioactive products. I want our discussion today to answer a number of specific questions.

The first question derives basically from the population being inadequately informed. I hope that Boris Vasilyevich Nikipelov will provide an exhaustive reply. Not long ago, reports filtered into the press that the Soviet Union agreed to bury radioactive waste from uranium it sold abroad to a number of countries. Is this true?

[Nikipelov] Such news did appear in the press. It came from INTERFAX. It said the Soviet Union, and our ministry, was preparing to sell a certain quantity of uranium, and that under accepted international practice the waste from the uranium would be buried on the territory of the country which sold it. It is completely

unclear to us where such a report could have come from. There is no such international practice, there are no waste products from uranium, as such. Therefore, when natural uranium is sold, when enriched uranium is sold—which is economically extremely profitable for our country—no waste is returned to or buried on the territory of our country or of any country.

There is something else I want to say. Something was published recently to the effect that foreign currency earned by our ministry from sales of uranium materials all remains with the ministry. This is simply incorrect. Unfortunately, despite the fact that production of highly enriched uranium is a scientifically intensive high intelligence technology, enterprises belonging to our ministry receive only two percent of the foreign currency returns obtained by the state. All the rest goes to the state.

[Zelentsov] As I understand it, we receive back—from Finland, specifically—the fuel elements used at Finnish atomic power stations which were built with our assistance. Such elements have to be processed and their waste products buried.

[Nikipelov] Quite right. There is an international practice accepted in many countries that when an atomic power plant is built to a particular country's plan and fitted with fuel element assemblies made in that country from uranium enriched in that country, then the elements are returned to the producer country. We have taken part in the construction, to our plans, of atomic power stations in East European countries and Finland. The spent heat element assemblies from those stations are indeed returned to our country and are now mainly in long-term storage in fully safeguarded ecological conditions. Near Chelyabinsk, at the Mayak Chemical Combine which is now well known, an experimental industrial facility has been set up for reprocessing spent fuel assemblies from VVER-440 [water-cooled] reactors. At the experimental facility nuclear waste is vitrified, or converted to a hard state, and buried in the ground, in reliable conditions, in a special heavily protected storage chamber with all security measures in line with international norms. The Soviet Union does not carry out burial of highly active materials in vitrified form, but rather is researching and seeking places where it would be ecologically safe to organize such storage. Throughout the world it is accepted that such materials should be aged for a lengthy period before being definitively buried. That is what we want to do.

[Zelentsov] In the opinion of a number of specialists, our country is currently in an extremely complicated power supply position. The fact is that the growth rate of power generation capacities is less than 1.5 percent per annum. On account of this, I would like to put a question to Deputy Minister of Power Yevgeniy Ivanovich Petryayev. Yevgeniy Ivanovich, how do you assess the overall situation as regards power generation today and what are the immediate prospects for the coming winter, for the coming year, and for the next three to five years?

[Petryayev] I assess the situation as very alarming, perhaps even critical. You have said that the introduction of new power generating capacities amounts to something on the order of 1.5 percent. But an even greater proportion is coming to the end of its working life. The service life of power generating facilities both in our country and throughout the world is 30 years. Thirty years ago our country was putting into operation capacities of 10 million kilowatts every year. Today we are commissioning between 3 to 4 million. In other words, the amount that is becoming obsolete is greater than what we are commissioning anew.

[Zelentsov] I had occasion to visit the central control desk of our power grid system. Specialists showed me power stations which are forced to work at the present time even though the time for their preventative maintenance passed a very long time ago.

[Petrayev] I would not even say preventative maintenance; I would say the time when they should simply be written off and taken out of service. The situation is a very complicated one. The reduction of capital investment in power generation is being reflected in and is having an effect upon the reliability of power supplies in many areas. Things are difficult for us today—not yet throughout the whole of the country—but things are very difficult in the Transcaucasus.

The reason, you know, is the closure of a nuclear power station there, the Armenian Nuclear Power Station, which supplied 40 percent of the output of electric power in Armenia and 12 percent of electric power output in the whole of the Transcaucasus. We have a very difficult situation in the Ukraine. There is the greatest degree of severity as regards power supplies because, as you know, a moratorium has been declared there on the construction of nuclear power stations and generating sets of the Khmelnitskaya and the Zaporozhye Nuclear Power Stations, which were virtually ready for commissioning. These stations are not at work today.

There is an exceptionally difficult situation in the North Caucasus where a decision to halt the construction of the Rostov Nuclear Power Station was also made. In the first place, time is needed in order to substitute this with something else. In our industry the momentum is considerable; it is a capital intensive industry requiring great efforts and investment for its development. Specialists' calculations show that in the North Caucasus, for example, social and economic development of whatever kind in the whole region will have to be suspended for 10 years if the Rostov Nuclear Power Station is not restored, because new stations have to be planned, pits have to be planned, or gas pipelines have to be built. On top of that, gas fields have to be prospected, and gas pipelines have to be brought down from the Yamal. All this takes decades. This concerns all of us so seriously that one can even put the matter in the following terms: If there is no electric power generation, then simply no programs for transition to the market will work, because

the market means active production of output and raising the living standards of people.

It has to be said that there is also a fairly high state of tension as regards fuel in the country. No doubt the listeners are most familiar with the kind of lines there are for gasoline at filling stations. This does not result from the fact that someone has hidden something somewhere. It simply isn't there. Oil production is falling. Gas production, although it is rising, is only doing so slowly. Following the miners' strikes, coal production was reduced by tens of millions of tonnes. There are ecological problems, too. They exist in the Donbass and in the Kuzbass. The coal basins in the Far East are not being developed. A power crisis awaits us there now. Along with the equipment becoming obsolete at our power stations, there are difficulties with the staff. Negative attitudes toward nuclear power generation and power generation in general have led to a loss of prestige and attractiveness by this industry as far as young specialists and those who work for us in general are concerned. [passage omitted]

[Zelentsov] Yevgeniy Ivanovich, you are a representative of traditional electricity generation and deputy minister of the USSR ministry of power. Do you think that we cannot get by without nuclear power generation?

[Petryayev] We cannot go on ensuring the normal development of the country and raising the living standards of the people without it. The fact that this nuclear power generation has to be as safe as possible, safe to the utmost limit is reasonably possible, that is a different matter and there is no doubt about it. [passage omitted]

[Zelentsov] Viktor Alekseyevich, is you ministry willing to allow any public group of experts access to your power stations and enterprises?

[Sidorenko] Absolutely any. In this case, there is no question. Essentially the whole of our society, if in the past it could have been described as a closed society, today the thesis of the open society is an absolute one for us. We are prepared for any expert examination, be it local or international, of the work, of the development work, of the projects that have been carried out, of the quality of construction. This is the road along which we are going. This is what they are talking about. There are those who try to sow further distrust of this and to block the very concepts. They say: Oh! Expert examination? It must have been bought.

[Zelentsov] Right. Do your ideological opponents—if one can put it like that—set up a group of experts themselves?

[Sidorenko] By all means. We do not restrict any form of expert consideration in that sense.

[Zelentsov] In other words, all enterprises, absolutely all enterprises belonging to the USSR Ministry of Atomic Energy and Industry are open for any group of experts whatsoever?

[Nikipelov] I am unable to confirm that, because in atomic energy and industry there are workshops and enterprises of a purely defense nature to which there is no free access. But the whole of the fuel cycle and all nuclear power stations in our country are completely open.

[Sidorenko] The whole of the activity which concerns nuclear power generation comes completely within the terms of your thesis. [passage omitted]

Chernobyl Union Conference Opens Near Kiev

LD2411184190 Moscow TASS in English 0928 GMT 24 Nov 90

[By UKRINFORM-TASS correspondent Aleksey Petrunya]

[Text] Kiev November 24 TASS—Humanism and mercy are the watchword of the Chernobyl Union, a public organisation. A national conference of this union opened in the resort city of Vorzel near Kiev today.

The union seeks to defend the interests of participants in the efforts to clean-up the aftermath of the Chernobyl accident, their families and citizens who suffered as a result of this disaster.

The all-union organisation unites over a hundred primary organisations in various parts of the country.

Union President Vladimir Shovkoshitniy delivered a report at the conference. Representatives of the society's local organisations, who arrived in the Ukraine from all union republics, told about the work accomplished by them over the period since the Chernobyl Union was founded in Kiev last June.

Speakers pointed out with concern that the consequences of the Chernobyl accident continued to darken the life of many people, especially those who dealt with its aftereffects or were staying in the zone polluted with radionuclides.

The state provides aid to them, but it is still not effective enough. The status for participants in the clean-up of the aftermath and those suffered has not yet been decided.

Participants in the conference said the congress of the Chernobyl Union had an important role to play in bringing together what earlier were isolated organisations. But a good deal was to be accomplished to enhance the effectiveness of the society's activity.

The conference also focuses on the union's international ties. Speakers said contacts had already been formed with firms and organisations in Germany, Norway, the United States, France, Sweden and the Ukrainian Diaspora.

Participants began discussing changes in the society's rules and the Ukrainian bill on the protection of citizens

who suffered from nuclear catastrophe. They are expected to elect the society's board and central council.

The conference will end its work on Sunday.

[Moscow World Service in English at 1600 GMT on 24 November carries a similar report on the Chernobyl Union conference which adds the following: "The Union's president, Vladimir Shovkoshitniy, says there are about 600,000 people affected by the Chernobyl nuclear accident. A considerable part of them still live in contaminated territories."]

Chernobyl Union Conference Ends in Ukraine

LD2511230090 Moscow TASS in English 2030 GMT 25 Nov 90

[By UKRINFORM-TASS correspondent Aleksey Petrunya]

[Text] Kiev November 26 TASS—An all-Union conference of the Chernobyl Alliance [Union] ended on Sunday in the resort city of Vorzel, near Kiev. This massive public organisation, that united participants in the Chernobyl clean-up operation and those who were affected by the catastrophe, has set itself the priority task of protecting the interests of those people and ensuring proper living and working conditions for them.

For two days participants in the conference, who represented some 100 primary organisations of the Alliance from about all the regions of the country, discussed problems dealing with the elimination of consequences of the Chernobyl disaster, the goals and tasks of the Alliance.

It was pointed out that many primary organisations had done much to improve the situation of Chernobyl victims since the holding of a constituent congress last June. However, they should further step up their activities for protecting the rights and interests of the Chernobyl victims. It is necessary to ensure real guarantees of normal living conditions for them, acting jointly with the federal and republic governments and local councils.

The conference elected a new board and a central council of the Alliance. It adopted appeals to the Soviet parliament and the Council of Ministers.

Chairman Outlines Purpose of Newly Formed Chernobyl Committee

91WN0041A Kiev PRAVDA UKRAINY in Russian 28 Sep 90 p 3

[Interview with Viktor Afanasyevich Gubanov, chairman of the Union Committee To Eliminate the Aftereffects of the Chernobyl Accident, by PRAVDA UKRAINY correspondent A. Sokol, Chernobyl, Kiev Oblast, date not specified: "We Are Counting on Trust"; first paragraph is source introduction]

[Text] At the state level the Union Governmental Commission has been concerned with the Chernobyl disaster for more than four years; it was established immediately after the disaster and consists of leaders who have worked on it intermittently, on a voluntary basis one should add. Recently a Committee To Eliminate the Aftereffects of the Chernobyl Accident was finally formed as part of the USSR Council of Ministers State Commission for Emergency Situations. V.A. Gubanov was appointed to head it up. What is this new governmental body like? What are its duties?

[Sokol] Viktor Afanasyevich (Gubanov), a few words about yourself, please, about how your fate has been linked with Chernobyl.

[Gubanov] I am a physicist by training. I worked mainly in Kazakhstan, in the city of Shevchenko. I went there as a young specialist, became director of the atomic power plant and was chosen first secretary of the party gorkom. For the last two years I have worked for the USSR Ministry of the Atomic Energy Industry; I was responsible for nuclear and radiation safety, including safety in the Chernobyl zone.

[Sokol] The committee which you head has just been established; it is probably too early to talk about its work. What can be said about the tasks which are to be solved?

[Gubanov] The range of issues is broad, as is the problem itself. The committee's main concern is to work out state programs and monitor their fulfillment. I would like to single out as well its coordinating role. It will coordinate the actions of each and every organization—state, public and international—which is participating in the work to eliminate the aftereffects of the disaster. We are trying not to duplicate the existing governmental structures—we are looking for our own specific characteristics; we are defining our own style of work. I would like to say the following about its features.

We will make all major decisions in consulatation with the affected union republics. The question is how should this be done? Above all, through the Governmental Commission. It would seem that it has not outlived its usefulness; it needs to be retained, but with a change in composition. Here the Union republics must take their own places. Their leaders concerned with Chernobyl are deputy chairmen. Coordinated, jointly-adopted resolutions by this organ will determine the committee's policy. And the actions of the committee itself are to be taken in a similar way: with mandatory participation by the union republics. It is proposed to establish an inter-republic council for inter-nationality cooperation.

We are counting on trust and confidence in the committee to play an important role its work. We take this factor into account when choosing personnel; we are looking for specialists who have a profound knowledge of their field and who are capable of becoming authoritative figures, whose opinions will carry weight with the victims of the distaster.

[Sokol] Tell us in more detail about the people working on the committee. Specifically, how many are there and what kind of training do they have?

[Gubanov] The number of committee members is small; there are 60 people. Its nucleus comes from the department concerned with Chernobyl problems of the USSR Council of Ministers Commission for Emergency Situations.

The committee has four departments for the following purposes: formulating and monitoring the fulfillment of state programs; scientific support; medicine; radiation safety and social problems; work with the public; coordinating international cooperation. The department in charge of formulating and monitoring the fulfillment of state programs will be closely linked with the republics. It is to have a sector which will be concerned as well with local problems. We must know what people are thinking, what concerns them. The remaining subdivisions are functional ones. The scientific support department, for example, will coordinate the efforts of institutes and scientific institutions, etc.

Each of the departments will be enclosed in specific structures in the republics. They, as is well known, are already in operation. The Ukrainian and Belorussian committees have state status. Russia's is being determined. It is clear there will be the same subdivision here as at the union level. We can see that differences have appeared at the very beginning. But I do not think that this factor is fundamental. What is important is that both the union- and republic-level committees take coordinated steps. Such actions are especially necessary when determining social benefits and compensation. Competition in this area is completely unacceptable.

As a result of the current uncertainty in economic relations between the regions and the center, financial support for urgent measures planned for 1991-1992 is a source of concern. All the republics must allot a portion of their profits for Chernobyl. It is necessary to share.

Since the conversation has touched on money, I will say one more thing. It is important that it be utilized efficiently. The program of urgent measures for 1991-1992 calls for the expenditure of more than 16 billion rubles. The amounts are enormous. The yield must be in proportion.

In the program under discussion the tasks are listed in an integrated fashion. Now they must be "interpreted" and made more specific. This especially concerns the work for 1991.

There is a proposal to have the 1991 plans examined by the appropriate expert councils. Let the specialists have their say at the beginning, let them judge how much the proposed measures will help with the realization of the program which has been set out. And then we shall make the final decision. The money must be channeled in the the best possible way.

[Sokol] Experts from USSR Gosplan, for example, have already examined these questions. I was present at one of these investigations—it was a difficult session. Due to the lack of criteria on which to determine the true state of affairs, fruitless discussions developed. And the Gosplan policy is well known: a measure which is not sufficiently substantiated is excluded from the plan. And we are talking about the fate of thousands of people...

[Gubanov] A qualified expert commission on scientific programs is possible. As for criteria for living in the radiation-polluted territories—state ones!—they are being determined and will soon exist. It is essential to clarify this situation.

Under the program of urgent measures it has been determined what will be done by the Union ministries and agencies and what by the republic-level ones. The expert councils (with participation by representatives of the republics) will give their conclusions only through departmental plans. When they are accepted, the committee will monitor their fullfillment. We do not intend to subject the programs of the republics to any expert commissions. USSR Gosplan will consider them, and the Governmental Commission will give the final approval. The discussion, after all, is about billions; there must be organized forms for their distribution. The republics themselves will excercise supervision.

Two important documents on Chernobyl are being prepared at present. One of them concerns the criteria for residing in the affected regions. The state has not established the following: what level of pollution makes it dangerous to live there, thus requiring mandatory resettlement; the level at which one can leave voluntarily and receive compensation; what is required for those who remain, what kind of benefits are to be granted to them, given that there is no threat to their health. The document being prepared will dot all the i's. I emphasize: at the state level.

A parallel effort is centered on a law being drafted concerning the Chernobyl catastrophe. It will resolve many problems. Specifically, it will define the status of those affected. According to categories! Compensation and benefits will be established in accordance with the categories.

[Sokol] The Declaration Concerning State Sovereignty of the Ukraine proposes supremacy for the laws of the republic...

[Gubanov] One would hope that generally acceptable decisions are made. A single foundation and a shared approach are needed. And the source of support for all of this is science and only science.

The sociopolitical situation today is such that it is necessary to reflect, to distinguish genuine concern for the affected from exploitation of the circumstances and from pseudo-concern.

[Sokol] You have visited the 30-kilometer zone and its facilities, you have become acquainted with a region where people are living with radiation pollution. As chairman of the committee, what thoughts have occurred to you after all of this?

[Gubanov] I have become convinced once again of the complexity of the problem. It has a multitude of nuances, and they must be taken into consideration in each individual case. Our decisions must be considered ones. We simply cannot make mistakes.

IAEA Radiation Monitoring Work in USSR Detailed

91WN0067B Moscow PRAVDA in Russian 2 Nov 90 Second Edition p 5

[Article by PRAVDA special correspondents M. Korolev, I. Melnikov, and A. Simurov, in Seibersdorf and Vienna, Austria: "Chernobyl Order: 'Our Motto Is Openness'"]

[Text] **If we could use some supersensitive instrument to draw a curve which describes the behavior of people in the zone sprinkled with Chernobyl ash, something incredibly complicated and dancing diabolically would come out. It would reflect secrecy and cover-up, breakthroughs of parliamentary and public rally glasnost, disputes among scientists, people's health, the condition of the animal and plant world, political ambitions of leaders and social organization leaders. And the Lord knows what else...**

All this appears clearly, visibly, and tangibly when you meet people in Belorussia, in the strictly controlled zones. In the eyes and words of the people you talk with, you see and hear that they don't believe the politicians, or the medical workers, or the journalists. And they add: we don't believe even our own, people born and bred here. Let's have foreign independent experts!

In Bragin and Cherikov one of us observed the work of a group of foreign specialists headed by an Austrian, Rudolf Hohman. To each of the people who had sat before the measuring instruments in the microbus for a while, they explained the instruments' readings, which were run through an "electronic brain." And again people doubted. Not only because increased doses of radiation were not registered, but also because the figures coincided with the data of the local rayon hospital.

The representatives of IAEA [International Atomic Energy Agency] should be given due credit. Scientists from 20 countries trade off with one another and day after day scrupulously examine people and livestock farms, visit homes, farms, hospitals, and work places, take thousands and thousands of samples, and gather up individual dosimeters passed out earlier. And all this is sent by plane in special containers to the IAEA laboratory near Vienna, with the active participation of Irzha Viranek, the head of the IAEA Mobile Staff Headquarters in Gomel.

If once again we mentally draw one more curve—the paths of charitable aid (both our own and foreign) for those who suffered from the Chernobyl disaster, we discover that the second curve is in no way superimposed upon the first one and does not coincide with it. Not in terms of time, scale, or succession. Is distrust perhaps one of the reasons for this?

Judging from everything, the desire to calm the population also dictated the recent report in the Belorussian press by the Belorussian SSR State Committee on Problems of Eliminating the Consequences of the Chernobyl Disaster. Among the different questions, it says, international experts are supposed to give answers to the following, in particular:

> How accurate are the methods used up to now to determine individual and collective radiation doses?
>
> Is there clear evidence that signs which are deadly to health have increased among the population in regions where more radioactive fall-out occurred as compared with regions with a lower degree of contamination?
>
> Do the data gathered by independent groups correspond with that accumulated by Soviet experts in the past four years?

Looking for answers to these questions, we also met with Doctor Pierre-Robert Danezi and his associates in Seibersdorf—an IAEA laboratory was set up there.

Finding the road from Vienna to Seibersdorf was not simple, and after entering the director's office, we could not restrain from joking: so the laboratory is hidden away!

"Really?" Danezi shrugged his shoulders and turned to his deputy, Yugoslav physicist Vlado Valkovich. "We've been working together here for almost four years now and we didn't notice. The slogan of our laboratory is openness. It always has been since the laboratory was first founded in the summer of 1962 in the tiny Lower Austrian village of Seibersdorf. The place was built on a large scale because the United States gave 600,000 dollars and other IAEA countries turned over experimental equipment free of charge. The Austrian government set a symbolic lease payment for the large land area, charging the agency 1 shilling a year.

"There are now three departments operating within the framework of this scientific institution. One of them, the guarantee analysis laboratory, specializes in isotope and chemical analysis of samples of atomic material taken by the IAEA while inspecting atomic installations in dozens of states."

From the director's window, we could see a group of young people in white gowns going to the experimental field. From the color of their skin, it was not difficult to guess that they represented different continents. They were trainees. In the laboratory they learn methods of

improving grain varieties using mutations induced by radiation. Indeed, the trainees in the entymology section also return to their native lands as good magicians. After mastering the methods of sterilization of insect pests using radiation, they give invaluable help to farmers. Here are just two examples. The fruit fly has almost vanished in Mexico, and that means half a billion dollars of additional profits a year for the country. The population of Tsetse flies, the scourge of local animal husbandry, has been destroyed in Nigeria in an agricultural zone with an area of 1,500 square kilometers.

Turning our attention to the group of trainees, P.-R. Danezi notes:

"No question, theoretical formulations and experiments are held in high regard in the laboratory, but all the same we consider our main tasks to be training specialists from 'third world' countries and improving the qualifications of young scientists. Trainees are working on a whole range of problems, but special attention is being given to dosimetry, the study of radioactivity, and substantiation of basic standards compulsory for the IAEA member-countries. The laboratory formulates these methods and uses them itself. So we are the dictators of fashion in our scientific field."

We inquire, how are materials and developments distributed to clients—free of charge or on a commercial basis? It is explained that the developing countries receive everything free of charge. Moreover, subsidies are even given for some programs, and representatives of certain countries are permitted to visit IAEA and discuss questions which arise. But a commercial basis is also offered in the agency's activity. Thus, within the framework of the "analytical quality control" program, standard materials are sold for 40 dollars a unit. At the same time, similar materials from the National Bureau of Standards of the United States cost 100-200 dollars a piece.

Within the laboratory's walls, about 100 people go through training every year and learn methods which are new to them, determining the content of radionuclides in soil and food products, for example. After receiving their diplomas following exams, they are able to work at the level imposed by IAEA. The laboratory gives them the ability to use modern instruments and introduces them to progressive methods.

Other forms of training cadres are also used: interregional educational courses; and the group training method, where five or six IAEA specialists study a certain practical problem together for half a year. Here mentor relations, the transmission of know-how firsthand, and direct observation of unusual experiments are given free range.

As we can see, specialists of the highest qualifications are participating in the project "Ecological Consequences of the Chernobyl Disaster." The person we were talking with called this project a "pulsating" one, thereby emphasizing its intensity and uniqueness.

"The project was not on the IAEA calendar and in general it is fundamentally new," Doctor Danezi reflects aloud. "The first step toward this was made in October 1989, when the USSR government asked the agency to conduct an independent expert examination of Chernobyl. Since that time, several influential international organizations have worked on the project, and our laboratory has become a kind of working spoke in this wheel. We use every means to try to help the independent experts, who are headed by Professor Itsudzo Sigematsu, director of the research fund on radiation effects in Hiroshima. The task of the expert group includes collecting materials and analyzing the information obtained—on radiation doses, on the content of radionuclides in food products, and the like. The conclusions will be made after careful study which rules out subjectivity in opinions. That is especially important for the victims, since quite a considerable number of them, as we know, distrust the results of studies done by their own specialists.

"We are specifically defining the nature of contamination of the environment according to components," Danezi explained. "These are radioactive contamination of soil, plants, and underground water. The same principle is the basis for studying the impact on people's health of rare elements which are accumulated or migrate in nature.

"Our laboratory is also charged with combining the data obtained, analyzing it, and then summarizing it. The very difficult work began several months ago, with no allowance for mistakes. It will last a long time and the first results will be clear only by the very end of the year."

The laboratory's director does not exaggerate the difficulty of the task it faces. The samples are marked secretly so that the person studying them does not know where they were sent from, from the contamination zone or from a clean zone, or perhaps he got a control sample from who-knows-where. Usually it is dry milk, dried grass, a clump of soil, or filters from the air and water systems of the Chernobyl zone. The results of these analyses done outside the laboratory are gathered in Seibersdorf. It is there that they are then processed and the quality of the work is checked.

Without knowing the data on the concentration of radionuclides in the samples sent, the laboratory associates will also send them anonymously for analysis to scientists of various countries which have offered their services voluntarily and free of charge. The information material accumulated will go for identification, and only afterwards will be announced according to the appropriate IAEA standards.

"Our agency's specialists," emphasizes Danezi, "are aware that the materials from Chernobyl are unique to the highest degree, and analysis of them in various corners of the world is an unprecedented experiment in international cooperation among scientists."

In order to become familiar with the character as well as the technical level of the instruments and methods which Soviet scientific organizations use in their work, the IAEA experts and their independent colleagues have made and will continue to make trips to Belorussia and the Ukraine. Verifying compliance with standard procedures for selecting samples for analysis is also part of the experts' task. An expert examination has already been done to determine whether the characteristics of the samples and measurements taken by IAEA specialists at particular points match the data given in dosimetry maps published in the USSR.

One of the key tasks of the agency's scientists was measuring the radiation doses people have received and are receiving. In doing so, they also take into account the doses included with contaminated foodstuffs. All the work is done in close contact with Soviet scientists and encompasses the regions of the Ukraine, Belorussia, and the RSFSR which have suffered.

Many subdivisions of the Seibersdorf complex are involved in fulfilling the "Chernobyl order." Thus, in the food cycle laboratory we were shown samples of products from Belorussia, from the Ukraine, and from the Bryansk region. A comprehensive analysis of them will provide a picture which reflects the situation in regions affected by the disaster.

Painstaking work to interpret the incoming information is ahead. The results of the research are important to a broad circle of specialists, especially medical workers. The prestige the laboratory has achieved over the decades creates an atmosphere of trust. Scientists throughout the world have good reason for believing that the Seibersdorf data is irreproachable.

The hours in Seibersdorf flew by unnoticed. When the long line of research offices and chambers—radiation defense, dosimetry, and many others—was behind us, we asked Doctor Danezi a few more questions.

"How are the interrelationships between the laboratory and the neighboring population being structured?"

"Work is done in the physical-chemical research wing on a level not exceeding the natural radioactivity background," the director answered concretely. "Analytical groups deal with preparations which have a higher level of radioactivity. But the protection methods used and the professionalism of the associates have as yet given rise to no conflicts with the local population. Representatives of the Austrian federal Ministry for Health and Environmental Protection visit the laboratory and study the documentation, methodological recommendations, and procedures for conducting experiments. Up to now there have been no misunderstandings. The laboratory has been declared extra-territorial, and we have the right not to invite Austrian experts. But they are frequent guests here and we show them how we work; that promotes mutual understanding."

"In some places the idea is expressed: how much can the IAEA experts be trusted? And don't they have a heightened interest in using the contaminated territories as a unique research ground; doesn't that lead to dragging out the work?"

"The objectivity of the conclusions is based on a comparison of data obtained by IAEA associates and by independent experts. In addition, the agency cannot help but value its reputation. When the project is over, the results will be published, and each person who wishes may familiarize himself with the methods for conducting the analyses and calculations."

"Do the specialists see realistic ways to overcome radiophobia among the people?"

"The question is very complicated," answers Doctor Danezi after pondering a moment. "However, if we return again to the Chernobyl experience, in the groups of experts who are traveling to the USSR, there are psychologists who are directly involved in working on this problem. Their recommendations will be included in the final report. I hope that they will identify realistic ways to get rid of groundless fear among the people on the basis of the real picture."

In bidding farewell, Doctor Danezi said:

"You can visit us any time and receive the information you are interested in. IAEA policy is openness and free access to the facts which the public needs."

Current Chernobyl Impact on Kiev Urban Area Detailed at Roundtable

91WN0041B Kiev PRAVDA UKRAINY in Russian 23 Sep 90 p 2

[Roundtable discussion with Academician V.G. Baryakhtar, vice-president of the Ukrainian SSR Academy of Sciences, Academician D.M. Grodzinskiy, head of the Department of Biophysics and Radiobiology of the Institute of Cell Biology and Genetic Engineering of the UkSSR Academy of Sciences; L.V. Skripka, candidate of biological sciences, chairman of the Permanent Commission of the Kiev City Soviet of People's Deputies on Problems Related to the Aftereffects of the Chernobyl Disaster; and V.M. Didychenko, head of the Main Administration for Health Care of the Kiev Gorispolkom; led by D. Kiyanskiy, date and place not specified: "Kiev: The Fifth Year After Chernobyl": first paragraph is source introduction]

[Text] When the discussion turns to the inhabited areas of the republic which suffered as a result of the accident at the Chernobyl AES [Nuclear Electric Power Station], people usually remember the small cites and villages located in Kiev and Zhitomir Oblasts, as well as in the areas which found themselves in the western or southern path of the disaster. And often they lose sight of the city of 3 million, which it is less than 100 kilometers away from the AES in a straight line. If one looks at the map of

radiation pollution published in the newspapers, then it may seem as if all the unpleasantness ends at the boundaries of Kiev's northern rayons. Is that the case? What is the situation in the republic's capital today—four years after Chernobyl? This was the subject of a roundtable meeting organized by UkrINFORM with the following participants: Academician V.G. Baryakhtar, vice-president of the UkSSR Academy of Sciences; Academician D.M. Grodzinskiy, head of the Department of Biophysics and Radiobiology of the Institute of Cell Biology and Genetic Engineering of the UkSSR Academy of Sciences; L.V. Skripka, candidate of biological sciences, chairman of the Permanent Commission of the Kiev City Soviet of People's Deputies on Problems Related to the Aftereffects of the Chernobyl Disaster; and V.M. Didychenko, head of the Main Administration for Health Care of the Kiev Gorispolkom.

[Kiyanskiy] In the first days after the Chernobyl accident, when the republic's health care leaders were persuading us that nothing terrible had happened, some Western information media called Kiev the "Soviet Hiroshima." Of course, this was a metaphor. Nonetheless, how closely did this correspond to reality?

[Grodzinskiy] In Kiev there was no blast, no mass radiation injury, and there were no enormous doses. Nonetheless, while the bombs dropped on Hiroshima and Nagasaki contained several tens of kilograms of nuclear material, the RBMK reactor contained 192 tons. During the explosion, according to estimates by specialists, 3.7 percent of the fuel was expelled, and it contained a great diversity of radionuclides. Another unfavorable factor was the isotope composition of the fission products. In the Japanese cities their total decay curve dropped to small values more sharply. In other words, in Chernobyl the decay is taking place much more slowly. Thus, in terms of the expelled radioactivity, the Chernobyl catastrophe exceeds Hiroshima by several orders of magnitude. But if we take the aftereffects which will appear over several decades, it is as great as the Japanese tragedy in terms of its influence of people's health.

[Kiyanskiy] Four years have passed since the Chernobyl AES disaster. Can any statistical conclusions be drawn regarding the influence of small doses of radiation (and are these doses so low?) on the health of Kiev residents? At one time the city's residents were being acused of "radiophobia." Who proved to be right: they or those who accused them of being faint-hearted?

[Didychenko] If "radiophobia" has been observed, I think that is only because in the first post-Chernobyl days Kiev residents were completely deprived of the necessary information. And lack of information and fear are cousins. Nor do we by any means know all the aftereffects of the Chernobyl catastrophe even today. Some will appear in 10-15 years, others significantly later. But I am firmly convinced of one thing: any dose of radiation is harmful for a human being. Today a majority of representatives from health care support the "nonthreshold" concept. However, the aftereffects are already being seen even now. I will cite some data, which have not yet been reported in the press. In comparison with 1985, the incidence of oncological diseases has increased 2.4 percent. That includes an 82.6 percent increase in thyroid tumors and 51.4 percent increase in oral cavity tumors. An increase in blood diseases among children has been noted, especially in the last two years. It is not difficult to understand how important it is to improve the dispensary service. Unfortunately, however, the city health care facilities do not have at their disposal the necessary resources (up-to-date genetic laboratories, hemo-analyzers, various kinds of ultra sound equipment).

[Grodzinskiy] Here one should also talk about the substantial reduction in the antiviral and anticancerogenic immunity of Kiev residents. In addition, Belorussian scientists think that damage to the thyroid gland sustained during those days of 1986 when a cloud of radioactive iodine passed over the city will have an effect on the growth of tumors.

[Skripka] I want to cite some data which until very recently were considered strictly secret. Due to the delay in carrying out iodotherapy in Kiev, the load on residents' thyroids increased 15-fold in comparison with that of people who took the iodine preparations and stayed indoors, and two-fold in comparison with that of people who took these preparations but spent most of their time outdoors.

Recently our commission heard from a woman whose daughter had received—according to the model for one-time uptake of iodine into the thyroid—40 rems (roentgen equivalent man); the measurements were taken in late May and early June 1986, when the child had already been taken out of the city. And this means that in reality the dose may have been much greater. The little girl is now seriously ill. But what I want to emphasize is that at the time of the accident at the AES she did not live in Chernobyl, but in Kiev on Shchusev Street. We now have before us the problem of determining how many other such children there are in the city. They all need to be helped, and without delay.

Unfortunately, we have just as inadequate knowledge about the pollution of foodstuffs by radioactive iodine; we have only a poor idea of what kind of doses we may have received by eating them. The commission has data which provide evidence that a child up to the age of four who drank a liter of milk per day in May 1986 may have ingested with it 74 rems and 7.4 rems with 100 grams of green vegetables. It is true that these measurements were carried out in the 30-kilometer zone, but according to extremely reliable information, the level of iodine-131, for example, throughout Kiev was nearly 10-fold greater than it was in Pripyat, which can be explained by the vagaries of the wind.

Today it is well known that Kiev received fallout from those same radioactive substances (zirconium, niobium, cesium, barium, lanthanum, ruthenium and a whole

series of others, including transuranium elements) as Pripyat. Moreover, research carried out in the hospital of the UkSSR Committee for State Security has shown that a similar spectrum of substances (with the exception of uranium, for which no test was carried out) was also present in the blood of humans. At the same time, it is well known that rubidium, for example, may influence our psyche. In this connection the concept of radiophobia acquires a deeply clinical nature.

[Grodzinskiy] But when it was uttered by certain health care leaders in the republic it had an almost insulting edge to it. Moreover, a phobia is a nervous disorder, but by no means is it the faint-heartedness of which they accused the residents of Kiev and other cities of the Ukraine.

[Kiyanskiy] What is the source of the data on the amount of iodine and the list of radioactive substances from which the republic's capital received fallout?

[Skripka] They were presented by staff members at Institute of Nuclear Research of the UkSSR Academy of Sciences.

[Didychenko] Although the Kiev children received smaller doses of radiation to the thyroid than, for example, the children in the Polesskiy and Ivankovskiy Rayons of Kiev Oblast or in the Ovruchskiy and Narodichskiy Rayons in Zhitomir Oblast; nonetheless, the collective dose which they received is more than one third the radiation dose received by the thyroids of children in the eight rayons of the Ukraine which suffered the most from the Chernobyl accident (due to greater numbers). For this reason radiation-induced illnesses must be given particular attention by Kiev endocrinologists—both scientists and practitioners, and all the more because the residents of the city received definite doses of radiation with food products as well, especially in the first days after the Chernobyl catastrophe.

[V.G. Baryakhtar] As early as 30 April 1986 the Institute of Nuclear Research of the UkSSR Academy of Sciences assembled an emergency commission. At that time we understood that milk would be one of the main sources of radionuclide intake into the the human body. Literally within several days the necessary equipment was prepared and installed at all four of the city's milk plants. And staff members from the Academy of Sciences—specialists in radiation physics—were on duty there constantly. For this reason I can state authoritatively: polluted food did not enter the diet of Kiev residents from these enterprises. Soon afterwards similar equipment began to operate at the bread plants and markets.

In addition, as early as May 1986 we had at our disposal a map of the pollution caused by radionuclides expelled from the reactor, and we took into account not only the presence of iodine, cesium and strontium, but other elments as well: the total accumulation was included in the calculation. As a result the UkSSR Academy of Sciences and Ministry of Health posed the question of whether to remove children from Kiev in the summer of 1986.

[Skripka] Nonetheless, food products are still being tested for cesium, and they do, after all, still contain strontium.

[Kiyanskiy] Is it technically possible to determine the presence of this element?

[Baryakhtar] It is much more difficult to carry out these kinds of analyses. Fortunately, during the accident significantly less strontium was expelled than might have been expected. For this reason less attention is also being devoted to it now. But I agree fully that it is essential to carry out research on strontium as well. The institutions of the UkSSR Academy of Sciences have developed sufficiently effective instruments for measuring pollution not only by gamma but also by beta radiation. As far back as a year and a half ago they were handed over to industrial enterprises for production but they are not being produced yet. Now a new generation of instruments has appeared, which make it possible to measure the radionuclide content of food products. And in general I am convinced that the level of radiation must be monitored more rigorously. Instruments which measure accurately to 10^{-8} are no longer good enough for us. The degree of pollution must be clearly determined to a level of 10^{-9}. This is the same as shifting from scales which weigh in poods to instruments which weigh in kilograms.

[Kiyanskiy] And what can be said about alpha particles? Did plutonium fall within the city boundaries?

[Baryakhtar] These kinds of particles, fortunately, are concentrated mainly in the five-kilometer zone (true, certain traces of them have been found in the 30-kilometer zone). Is there plutonium in Kiev? Unfortunately, yes. The question is only in what quantity. According to information which I have at my disposal, the concentrations of it which have been established here are not dangerous to health.

[Skripka] Recently a resident of the city came to our commission after discovering a source of radioactive radiation in his apartment—under the wallpaper. We sent the material scraped off the wall to the Institute of Nuclear Research of the UkSSR Academy of Sciences and learned that indeed it did contain a hot particle. This proves once again: while it is technically impossible to inpsect all the apartments in this city of 3 million, it is essential to inpsect as soon as possible the premises of buildings opened (or reopened after capital repairs) during the summer of 1986.

[Kiyanskiy] However, I would like to return to health care issues. How might the aftereffects of the Chernobyl disaster show up in the future?

[Didychenko] Unfortunately, I cannot say anything optimistic. Kiev residents need only the truth. And the truth is that we must be prepared for a definite increase in

oncological diseases and blood diseases among children. However, there is as yet no integrated concept of possible changes in the health status of the city's residents. If one is being absolutely honest, neither I nor my colleagues know what effect the Chernobyl accident will have in two or three years. That is for the scientists to say. But in order to change substantially the financing of medicine Kiev needs to be declared a city which has suffered from the accident at the Chernobyl AES.

[Skripka] A session of the city's soviet of people's deputies appealed on this subject to the USSR Supreme Soviet, to the president of the country and even to the UN, but the question, alas, has not been resolved. Granting Kiev this status means the appropriation of very significant sums of money. We are talking here about billions of rubles. And the financial state of the country today leaves much to be desired.

[Baryakhtar] This kind of decision requires very serious substantiation. It is generally accepted throughout the world that during a lifetime a person may accumulate no more than seven rems, that is, 0.1 rem per year. However, from natural radon alone we accumulate 3-5 times more than that. But the radiation which Kiev residents receive annually due to Chernobyl is less than 0.1 rem.

I lived in the Donbass for 10 years. For every person there approximately a ton of harmful chemical substances is given off per year. In the face of this, the life span is significantly lower than the average for the Ukraine. Social justice would require that having declared Kiev an ecological disaster zone, the same would have to be done with regard to the Donbass, Dnepropetrovsk, Zaporozhye, Krivoy Rog, etc. But after all, the western oblasts of the republic are also oversaturated with chemicals. I think that it was these considerations that lay at the heart of the decision by the UKSSR Supreme Soviet to declare the entire Ukraine to be an ecological disaster zone.

[Skripka] The fact that the Donbass and other regions of the republic are sick is not open to doubt. But let us make a precise diagnosis in each case. When talking about Kiev's illness, it is essential to determine what kind of radiation doses its residents received. According to the data available to us, one can talk about five-seven rems accumulated during 1986 alone, solely from internal irradiation, without taking into account alpha-decay or any external influence.

[Baryakhtar] According to my information the doses which Kiev residents received in 1986 were significantly less than those cited by L.V. Skripka.

[Kiyanskiy] What is the total dose accumulated as of today?

[Grodzinskiy] We will not resolve this question until we organize so-called retrospective dosimetry on a very serious basis. There are several methods which make it possible to establish past doses. One of them is radiospectroscopy of the tooth enamel. I am confident that our physicists could master it quite quickly. The cytogentic method is another, perhaps more accurate, way. It is being used in the FRG, in particular, to clarify what kind of dose was received by several citizens of that country, who left Kiev on 3 May 1986. The dose has proved to be higher than that which was recorded in our country on the basis of radiometric measurements.

[Baryakhtar] These methods, of course, are essential and it will not be difficult to master them at the institutes of the UkSSR Academy of Sciences. However, even without them we understand clearly that a very serious situation has developed. However, when making any given decision, we should weigh realistically what the republic has available today. With both hands I vote for all Kiev residents to be supplied with pure foodstuffs. But when there are not enough of them, the children, pregnant women and young people who will become mothers and fathers should be supplied first. We should tell the population honestly what we have available.

[Didychenko] I would like to add that the equipment in our genetic laboratories, including the one at the Kiev Scientific Research Institute of Pediatrics, Obstetrics and Gynecology, is out of date. Nor does the city have enough specific medicines, multivitamins or radioprotective products.

[Kiyanskiy] But the costs for this are not so great. Can the state not take them upon itself? After all, it is not the Kiev residents themselves who are guilty of the Chernobyl disaster.

[Didychenko] Why demand it from the state when there is a specific culprit? Minatomenergoprom (Ministry of the Atomic Power Industry) should long ago have repaid the debt to the city's health care services by giving it substantial financial assistance.

[Baryakhtar] At present the republic's government is considering a large program to produce entero-sorbents, which are necessary to draw harmful substances out of the body. A Kiev plant will produce them. An agreement to supply the raw materials has been signed with the Central Asian republics. We will receive the first batch of sorbents this year, and next year up to 100 tons of them will be produced.

[Grodzinskiy] Many of our diseases are linked to our self-induced state of vitamin deficiency; we have been afraid to buy fruits, vegetables and greens. At the same time the increased risk should be countered by including in foodstuffs those substances which are anticarcinogens and antimutagens. Moreover, they are well known to science. One would like to ask why has the Kiev Scientific Research Institute on Food Hygiene been silent up to now? Is it not time for it to speak up?

[Kiyanskiy] Kiev newspapers regularly publish maps of the city's radioactive pollution. But, unfortunately, they are too general and schematic. Is there any possibility of preparing more detailed maps, for example, maps which show individual city blocks?

[Baryakhtar] They already exist for cesium as well as strontium, and for various radioisotopes (unfortunately there are no maps for plutonium so far). Obviously it would be good to publish them in the form of a special atlas.

[Skripka] The Kirovgeologiya Production Association produces a gamma radiation survey of the city rayons. Its specialists do not determine what is contained in a specific place. They are interested only in its contours and elevations above the reference level. As of today 3,500 such points have been discovered, ranging from 0.5 to 20 curries per square kilometer. At present their radioactive decontamination is being carried out. But preliminary evaluations show that this will not be an easy job at all because the amounts of soil are simply enormous. Pollution maps have already been made for a number of rayons, the Percherskiy and Vatutinskiy Rayons, for example, and they have been handed over to the civil defense headquarters. I think that now it is not a question of whether Kiev residents do or do not know exactly where these spots are located, it is more a matter of eliminating them soon as possible.

Many people ask when dosimeters will finally be for sale. But we propose making them available mainly for rent and at low cost. Then everyone who takes an instrument for a week can carefully check his apartment, dacha or garden.

[Kiyanskiy] Man adapts equally quickly to both good and bad. This is probably why we are no longer upset when we see fish caught in the Kiev Sea for sale in the city, why we are not surprised that at the markets people have stopped measuring the pollution of vegetables and fruits. Of course, one can understand people. In four and a half years they have become dead tired.

[Baryakhtar] Yes, the attenuation factor may indeed play a bad joke on us. Beginning in 1988 the vigilance of various municipal services began to wane. Today, as never before, highly-skilled specialists are needed in the area of radiation monitoring. And we simply must train them in a very short time period. All the conditions for this are available in the republic's capital. We shall not forget for a minute that the danger remains, it is next door, you can touch it, as they say, with your hands.

Soviet Study Finds High Cesium-137 Levels in Gulf of Finland

91WN0045B Moscow TRUD in Russian 12 Oct 90 p 4

[Report of interview with M. Spiridonov, scientific chief of an expedition in the research ship Akademik Aleksey Krylov, by Ye. Druzhinina, TRUD correspondent in Leningrad, under the rubric "The Interview in the Issue": "On the Gulf's Bottom—Cesium"]

[Text] **Radiation is tens of times higher than the normal level in sediments on the Gulf of Finland's bottom. The radiation contamination's cause—the Chernobyl disaster. Specialists participating in a comprehensive scientific-research expedition on the specialized ship Akademik Aleksey Krylov have come to this conclusion.**

"We have conducted a multifaceted scientific study, investigating the Gulf's bottom and the water environment in the reach from the Leningrad Barrier to the maritime border with Finland," says M. Spiridonov, the expedition's scientific chief. "The Akademik Aleksey Krylov is equipped according to the last word in science and technology, and there is a submarine vehicle, the 'Delfin' [Dolphin], that can be manned. In it, for the first time in their experience, marine geologists went down to the seabed; that is, to the site of their direct activity. We saw what a dreadful spectacle the Gulf of Finland's bottom presents.

"After analyzing repeatedly taken samples of sedimentary silt from the Gulf's bottom, it became clear that the radioactive isotope cesium-137 is present there in large quantities. The most contaminated with it are the bottom next to the complex of protective structures and Krasnogorskiy Roadstead near Kotlin Island.

"In the opinion of the scientists who took part in the study, the cause of the radioactive contamination of the Gulf of Finland's bottom can only be the accident at the Chernobyl Nuclear Power Plant [AES], and not local leakages at Leningrad Oblast's nuclear systems. The point is that the isotope cesium-137 is formed only during a reactor's meltdown [vzryv]. The Chernobyl cloud reached the Baltic region—this has been known—now it has become clear that the cloud did not disappear without traces. And who can guarantee that the cesium-137 settled only on the Gulf of Finland's bottom, and is not spread over a broader expanse of the Baltic Sea?

"Naturally, the new information gives rise to a number of questions for specialists: How dangerous is the radiation on the Gulf of Finland's bottom to the residents of Leningrad and the neighboring republics?

"Despite the radiation level's being several tens of times higher than the norm there, we feel that there is no immediate danger to people's health. Indeed, none of us walks around on the bottom of the Gulf. However, I see a danger on the part of the sea's inhabitants: Fish are always in contact with the bottom sediments and, of course, are subject to the intensified radiation. The catching of fish for Leningrad takes place in the areas that we studied, and this, consequently, serves as a carrier of the radiation to the human being. It seems that thorough studies must be made of the Gulf of Finland's fish and other biological resources, and, if these are radioactive above the norm, their catching in the Gulf must be discontinued.

"Science does not yet know any foolproof methods for fighting cesium-137. Unfortunately, not a single country will be able to help us. We can only wait from 30 to 70 years—such is the half-life of this element.

"Although the presence of the radioactive sediments turned out to be a surprise for the expedition's participants, the presence in the marine environment of a large amount of oil products and heavy metals—zinc, lead, and cadmium just confirmed the information already known before. There is particularly much of the heavy metals near the barrier and in Luga Bay [the Luga River Estuary]. The pollution's sources are known. They are the industrial enterprises of Leningrad and its oblast. The 'filth' gets into Neva Bay through the Neva River, and into Luga Bay through the Luga River. In addition, the Luga's waters carry an enormous quantity of agricultural waste into the Baltic Sea. The Gulf of Finland's Luga Bay is termed an ecological-disaster zone in the documents on the expedition's results.

"The timely marine-science patrolling about the Baltic on the ship Akademik Aleksey Krylov will be continued. Will we find out something more about our living environment?"

Burial Site for Chernobyl-Contaminated Soil From Kiev Shown

PM1411113790 Moscow Television Service in Russian 1230 GMT 11 Nov 90

[From the "Television News Service" newscast: Report by A. Bondarenko, G. Benkovskiy, identified by caption]

[Text] [Newscaster] It is amazing how many years it has taken for us to learn the extent of the damage caused by the Chernobyl disaster. Decontamination of buildings, streets, and trees is still going on in Kiev.

[Reporter] Decontamination operations are carried out in accordance with a carefully drawn up map which features literally every yard of the city's territory.

This is the so-called "burial ground"—the place where radioactive soil from Kiev is brought. It is located 17 km from the city.

A section of an industrial waste disposal site has been designated for this purpose. The radioactive soil is dumped in trenches lined with polyethylene sheeting. When a trench is full, it is carefully compacted and covered with clean soil.

Irina Petrovna, are you sure that this "burial ground" is absolutely safe and secure?

[I.P. Pashnitska, chief of radiological department, identified by caption] Yes, I am. A radiation monitoring system enables us to assess the radiation situation not only here at the site but also in the surrounding villages.

[Reporter] Anatoliy Bondarenko reporting from Kiev, especially for the "Television News Service."

Unionist Claims Radioactive Foods Shipped From Chernobyl

PM1511162490 Stockholm DAGENS NYHETER in Swedish 9 Nov 90 p 7

[Unattributed report on undated Stockholm interview with independent Soviet trade union representative Vadim Jijin by Thomas Michelsen: "'Contaminated Meat Being Shipped'—Trade Union Man Accuses Soviet Authorities"]

[Text] Meat, butter, cheese, and wheat from the fertile fields around Chernobyl are being spread throughout the whole of the Soviet Union. The only thing about which the authorities are careful is that these foodstuffs should not find their way to Moscow.

Vadim Jijin [name as published] works on the railroad, at a large depot for refrigerator cars. He can see from his documentation where the cars carrying foodstuffs have come from. But on the railroad cars themselves there is no marking to indicate where the food was actually produced.

"Specialists check the radioactivity in the food. But they do not produce any paperwork on it. Nor do they mark the food. And the cars are then spread throughout the Soviet Union."

Vadim Jijin is annoyed at how people are turning a blind eye and transporting foodstuffs which have been produced in the contaminated zone around Chernobyl. Food from other parts of the Soviet Union is transported to the people there.

"Really, the state ought to halt production in the contaminated zone around the nuclear power plant. But instead it is doing the opposite and is encouraging production," Vadim Jijin said.

Why is food no longer being sent to Moscow, which once received a great deal of food from this part of the Ukraine?

"In Moscow there are people who can measure radioactivity and who would be able to reveal what the food contains. Instead the food goes to regions where people are complaining most and demanding food."

Vadim Jijin is the chairman of a free trade union with 700 members at the refrigerator car depot in Dnepropetrovsk. At present he is attending a trade union conference organized in Sweden.

His position at work is uncomfortable. The management tried to fire him this summer, but did not succeed. His brother was confined to a psychiatric clinic for a time, after he revealed how railroad cars loaded with cabbages were simply left on one side at a station until the load rotted.

Vadim Jijin is a loud man, loaded with facts and figures about the difficult environmental situation around Dnepropetrovsk. The region contains three of the 68 towns

which have been officially declared by the Soviet Environment Ministry [as received] to be under particular ecological threat. One-third of all babies have physical or mental problems. Deaths from cancer are on the increase, as are diseases of the respiratory organs, Jijin said.

And radioactive waste is traveling around the railroad network in ordinary 50-kilo sacks. Once such waste sack turned up among sacks of cabbages.

He said that even the railroad cars which he works with and which come from the Chernobyl area are radioactive. But the problem is that there are no measuring instruments to be bought.

People cannot carry out their own measurements.

"I know that I work with meat from the contaminated areas, and we workers say that this should be stopped. But one problem is that the meat looks healthy and good; radioactivity doesn't smell."

The questions which particularly worries Jijin is the enormous leakage of freon from the railroad's refrigerator cars. He considers that his depot alone emits 300 tonnes of freon per year—an incredibly high figure.

"When these cars and refrigerator units were built people did not know that the freon damages the earth's protective ozone layer. That is why they did not bother to hide the fact that they leaked freon. But since we have been aware how dangerous this is, the authorities have classified the figures as 'top secret.'"

South African Assistance Planned for Chernobyl Recovery

MB2811132490 Johannesburg SAPA in English 1142 GMT 28 Nov 90

[Text] Pretoria Nov 28 SAPA—South Africa may send aid to the Soviet Union for those who are still suffering as a result of the Chernobyl nuclear disaster four years ago.

At a seminar in Pretoria on Wednesday between a visiting high-ranking Soviet delegation and top South African business and government officials, it was revealed that "mutual cooperation" was being planned.

Leader of the delegation, Mr. A.V. Chernuchin from the USSR Council of Ministers, told the seminar it had become neccessary to relocate people away from the area of the disaster.

"The situation is such that if by next year we do not relocate two million people living in the area of the disaster, the world community will feel the guilt for years and years."

It would be necessary to encourage development and build infrastructure to relocate the people, said Mr. Chernuchin.

The Soviet Union did not require financial aid but help in terms of products, manufacture and medicine.

"This has enormous meaning to business in South Africa. On this basis any kind of relationship or contact can be built," said Mr. Chernuchin.

Other communities had been informed that contacts with South Africa existed and that mutual cooperation was being planned to aid those who suffered in the disaster, he said.

In an interview with SAPA, Dr. Olga Vronskaya, a medical advisor on Chernobyl, said although a 30km radius area around Chernobyl was now uninhabited, there were still many people who lived within a 100km radius of the disaster area.

"These people are still eating poisoned food and water and breathe contaminated air. This has caused major medical problems."

People, especially children, were affected by various forms of cancer and thyroid gland complications.

The radiation from the Chernobyl disaster affected three republics. Five regions of the Ukraine, four regions of Russia and an area called Belorussia were affected.

Dr. Vronskaya said it was difficult to say how many people had been affected as radiation varied in intensity and depended on the region.

"Many of these regions are still being affected, even after four years."

She said the radiation had been spread over a vast area and had been affected by climatic conditions. In some instances the radiation near Chernobyl itself was less than that 2,000 km away. It is the people in the affected areas that had to be urgently relocated.

New Rules for Operating Nuclear Plants Issued

LD1411171990 Moscow Domestic Service in Russian 0900 GMT 14 Nov 90

[Summary] The USSR Ministry of Atomic Energy Industry has introduced new rules for designing and operating nuclear electric power stations [AES's]. Sidorenko, corresponding member of the USSR Academy of Sciences, has said that from now on the duty of designers and those who run AES's will be to take into consideration and analyze the extreme situations which could lead to an accident. The new rules state that special technical devices should be included in AES projects which will help AES workers to act quickly in case of emergency. A concrete dome is to be built over nuclear reactors to prevent radiation leaks into the atmosphere.

Expansion, Saftey of Bilibino Nuclear Power Station Discussed

OW2311080490 Moscow Television Service in Russian 0930 GMT 10 Nov 90

[Rezinovskiy video report from the "Vremya" newscast.]

[Text] Inhabitants in many regions of our country continue to prepare for winter, but in Chukotka the temperature dropped far below zero long ago. Until recently this did not worry residents of polar Bilibino because they were reliably warmed by the Bilibino Nuclear Electric Power Station [AES], but what will happen now? [Video cuts to outside shot of the AES, then shows residential buildings in Bilibino]

[Begin recording] [Rezinovskiy] The Bilibino AES continues to work without mishap or interruption, and the major rayon center of Bilibino remains one of the most beautiful settlements in the extreme Far East. Why? Because the air here is not streaked with plumes of smoke from boiler-room stacks, but this is not to say that such stacks will not invade the serene landscape in the near future. [Video cuts to show Rezinovskiy interviewing N.N. Respublikanskaya, deputy chairman of the Bilinskiy Rayon Soviet Executive Committee (Rayispolkom)]

Nadezhda Nikolayevna, how do you evaluate the situation of the Bilibino AES?

[Respublikanskaya] I assess it as critical. The reasons are as follows. First, we currently are experiencing heat energy deficits in the face of approaching mean temperatures of 51 degrees below zero. Second, in the year 2003, the operational life of the AES units will end, and the question of the settlement's very existence will arise. [Video cuts to external shots of the AES, residential buildings, and two men taking Geiger readings in snowy surroundings]

[Rezinovskiy] Meetings held a few days ago by the settlement and the Rayon Soviets of People's Deputies decided to support building the second stage of the AES. The nuclear power industry workers' coexistence with the people of Bilibino and their strict radiation monitoring for 30 kilometers around the station, which includes analyses of spring berries, river fauna, and the snow cover, have convinced the people of Bilibino of their high professionalism and concientiousness and that dealing with them is safe. But it appears that today the natural alarm of the people is nothing compared to the deep bureaucratic calm of the leaders of the USSR Ministry of Nuclear Power.

The second stage of the Bilibino AES has been in the planning stage for seven years without obvious progress. It would appear that Chernobyl has dissipated the euphoria of those who believe in the omnipotence and complete safety of nuclear energy. But one cannot go to the other extreme and deny the people such sources even where they have no other reasonable alternatives, particularly in Chukotka. [end recording]

'Green' Protest Halts Construction at Balakovo Nuclear Station

PM2611114190 Moscow Television Service in Russian 0330 GMT 22 Nov 90

[From the "120 Minutes" program: Report by V. Ryazanov, identified by caption earlier in the program]

[Text] [Ryazanov] Now a report on a burning topic. The "Greens" protest camp was here. This is the Balakovo AES [Nuclear Electric Power Station], whose closure is being sought by activists from the antinuclear movement. Their insistent efforts have resulted specifically in the cessation of construction of the fifth and sixth AES power units.

[P.L. Ipatov, Balakovo AES director, identified by caption] Today passions have abated somewhat; nevertheless there is still no stability in Balakovo City. The public still has no trust in us, the specialists, and has some apprehension with regard to the AES.

[Ryazanov] They believe those whose popularity rating is incomparably higher—the Bulgarian soothsayer Vanga, for instance. Rumor has it that she predicted a major accident in June-July at the Balakovo AES. Summer is behind us, it looks as though the danger is over!

[Ipatov] Today the Balakovo AES steadily carries outs its commitments and its indicators are some of the best in the sector for this class of reactor.

[Ryazanov] All the same, who is right in this dispute? What is the future for the pioneers of power generation on the Volga and, specifically, this AES' fourth power unit, which is scheduled for completion? It is still not clear.

Meanwhile peak power consumption is drawing near. The specialists' forecast is depressing. If a hard winter sets in, Russian optimism will not come to the rescue. The situation in power generation may be unmanageable.

The participants in a Volga scientific and practical seminar tried to find reasoned answers to these and other difficult questions. Scientific and public representatives and specialists advocated the most speedy adoption of a law on nuclear safety within the USSR. An urgent ecological examination of the Balakovo AES is needed. Although it did not prove possible to reach agreement on everything, there was none of the confrontation characteristic of rallies. The increase in trust and mutual understanding is an important result of this meeting. That is the varied news from Balakovo, the city of

chemical workers, power generation workers, construction workers, politicians, and ecologists. [Item ends approximately 36 minutes and 12 seconds into the program].

Chelyabinsk Authorities Approve Nuclear Power Plant

LD2611064690 Moscow Domestic Service in Russian 0600 GMT 26 Nov 90

[Summary] After story debate, the Chelyabinsk Oblast Soviet has decided to build the nuclear electric power station which has been the focus of public discussion for the last 18 months. The oblast is already saturated with industrial enterprises, and it has still not recovered from the consequences of the explosion of radioactive waste in 1957. Although many deputies spoke against it during their election campaign, deeper study has led them to believe that there is no alternative.

Deputies Vote To Reconstruct Yuzhnouralsk Nuclear Plant

LD2211094890 Moscow TASS International Service in Russian 0810 GMT 22 Nov 90

[Text] Chelyabinsk, 22 Nov (TASS)—TASS correspondent Yevgeniy Tkachenko reports:

By an overwhelming majority, the session of the oblast soviet of people's deputies in Chelyabinsk voted in favor of renewing construction of the Yuzhnouralsk Nuclear Power Station, mothballed by public demand.

The deputies here demanded that a system of measures should be envisaged to improve the ecological situation in the region linked with the activity of one of the first Soviet nuclear power engineering facilities, the "Mayak" Chemical Combine.

The cascade of reservoirs containing radioactive waste products with an overall volume of 400 million cubic metres, and Lake Karachay, in which about 120 curies of radionuclides have accumulated, represent a great danger. The water in the reservoirs is gradually rising and, unless steps are taken, threatens to splash deadly waste products on to the surrounding territories...and here the most reliable and, as yet, only means of rescue is a fast breeder nuclear power station. It will not only be capable of maintaining a safe level in the reservoirs but also will burn the plutonium which has already accumulated in huge quantities, turning it into electricity.

The hitherto prevailing public view as to the impermissibility of the nuclear electric power station on this territory, already oversaturated with radionuclides, is gradually changing in favor of the need to build it to improve the ecological situation.

Nuclear Test Issues, Controversies Explored

PM1911093990 Moscow KRASNAYA ZVEZDA in Russian 10 Nov 90 First Edition p 2

[Correspondent Lieutenant Colonel O. Falichev report: "Novaya Zemlya: Echo of Nuclear Explosion. Our Correspondent Visited the Zone of the Recent Test on the USSR's Northern Range"]

[Text] A squall of emotions and contradictory views literally swept the airwaves and newspaper pages following the 24 October test of a nuclear weapon in the Novaya Zemlya archipelago. The expediency of carrying out new explosions, problems of deputies' being informed of them, and other questions were discussed. As a result, public opinion was electrified in the extreme...

I spent a long time psyching myself up for this meeting, endeavoring to guess in advance what would strike me most strongly in Novaya Zemlya. The polar bears? The mountains of ice and snow? All this was there. Also engraved on my memory are the burning, piercing wind, the almost total ice crust on the land, and the fleeting day, like someone's unexpected glance, amid the polar night. But most of all—the air. The most ordinary air—of astounding purity, it is true—whose taste we in Moscow, alas, forgot long ago. It is amazing, but the fact remains that you can breathe more easily on the nuclear range than in the country's capital.

The sanitary zone where nuclear munitions are detonated is in the north of the archipelago, approximately 250 km from the main military camp at Beluzhya Guba. But even there, in the settlement of Severnyy, which can be reached only by sea and helicopter, the mountain landscape impresses with its primordial bleakness rather than traces of technological human activity.

The settlement of Severnyy is made up of approximately 20-30 small wooden huts, a boilerhouse, and a mooring. Who lives there permanently? A few military construction workers, some sort of guard, and a tunneling team from the Ukraine which digs galleries. This work is roughly the same as for subway builders. At the base of the mountain a gallery going two or three km into it is dug. There, deep within the rock, a nuclear device is set up, with dozens of wires leading from it to the command center to record telemetric information. In several places the exit is "sealed" by concrete, metal, and other barriers to prevent radioactive gases and decay products from reaching the outside after an explosion. This, in fact, is the entire technology.

Together with a group of officers and nuclear specialists I went up to the foot of the mountain within whose belly the nuclear explosion recently occurred. Beside me were Rear Admiral V. Gorev, chief of the range, and Candidate of Technical Sciences Colonel V. Safronov, chief of the radiation research group. The snowy slope was bare and deserted. One km away from it we took readings with a roentgenometer. The sensitive instrument showed

8-10 microroentgen per hour. And we detected no so-called "dirt"—beta-particles. The next reading was 30 meters from the entrance to the gallery. The scale showed 20 microroentgen. Is that a lot or a little? For comparison, I will remind you that the average level of background radiation in Moscow is approximately 15-20 microroentgen. Judge for yourselves.

We went on, into the sanitary zone surrounded by barbed wire and signs warning of the radiation danger. We approached the very mouth of the gallery, which had been carefully closed against chance entry by people or animals. It was only here, in the "subway" lobby, figuratively speaking, that the instruments showed an increased level of radiation, but still within permissible limits.

"Can you guarantee the reliability of the measuring equipment?" I asked Col. Safronov. "And do you inform the public of the results of readings?"

"I responsibly declare," Safronov said, "that Soviet specialists ensure that nuclear explosions are monitored to a standard not inferior to U.S. standards. Certain models of diagnostic equipment are simply unique to us: The Americans have offered big money for them. As for informing the public, there is the Public Information Center under the USSR Ministry of Atomic Power Engineering and Industry, to which measurement data and biological samples are sent. Similar materials are sent to the Arkhangelsk Nature Conservation Committee."

I will add that expeditions from the USSR Ministry of Health, the USSR State Committee for Hydrometeorology, and the USSR Ministry of the Fish Industry have visited the range at various times. They confirmed that underground explosions have resulted in no change in the radiation and ecological situation at the range or outside it. There is no subterranean water in Novaya Zemlya, and the nearest population center is almost 300 km away. Finally, the permafrost contributes to the self-localization of cracks and breaks in the ground, preserving, as it were, for ages the products of nuclear decay.

Why am I saying all this? Is it not in order to lull public opinion? I believe that nuclear tests are an evil which sooner or later mankind must end. When and how is another matter. Before expressing my own viewpoint on this question, I will return to figures. I have before me an act signed by representatives of the public in the Komi ASSR [Autonomous Soviet Socialist Republic] and Arkhangelsk Oblast. In particular, by I. Shpektor, people's deputy of the Komi ASSR and of Vorkuta City Soviet and member of the republic Supreme Soviet Standing Commission on Ecology; A. Taskayev, director of the Komi ASSR Biology Institute; M. Danilov, aide to RSFSR [Russian Soviet Federated Socialist Republic] People's Deputy A. Butorin; and correspondents for a number of local press publications. It speaks of measurements near the installation where the underground nuclear explosion was carried out 24 October 1990. I cite: "Some 30 meters from the gallery the gamma background did not exceed 20 microroentgen per hour, and there was no beta contamination. In the settlements of Rogachevo, Beluzhya, and Severnyy and on the transport ships Yauza and Gradus the gamma background stood at between seven and 15 microroentgen per hour, and there was no beta contamination." As we see, these figures are not very different from those obtained by our group. "I took my own dosimeter with me," Igor Leonidovich Shpektor said in conversation with me. "We used it to take readings from Vorkuta to Amderma. The background everywhere was lower than in Vorkuta and Moscow. The range is clean ecologically and so has a right to live. As for bald deer, those are fabrications."

And yet, maybe those who suggest that we should unilaterally end nuclear tests are right? But it is important to remember here that the United States is now working on the creation [sozdaniye] of third-generation nuclear weapons and has approved a 20-year program to improve them at a cost of $81 billion. And yet peace, as is known, rests on parity between the Soviet and U.S. nuclear arsenals. If this is upset, strategic equilibrium will collapse, we will become more vulnerable, and, in the final analysis, we will lag behind forever in ensuring our own adequate security.

But maybe it will be economically advantageous to end tests in our difficult times? We spend several tens of millions of rubles a year on all testing of nuclear weapons. Most of it goes on the Semipalatinsk range, which is evidently coming to the end of its life, while less goes on the Novaya Zemlya one. If it were distributed among Muscovites, let us say, everyone would end up with just over one ruble... Whereas "Nevada" costs $600-700 million a year. France, Britain, and China have not stopped testing.

Proceeding from the doctrine of defense sufficiency, the Soviet Union has advocated and continues to advocate a complete end to all nuclear testing. We have more than once announced moratoriums on explosions and have observed them. Before this explosion, for example, our ranges had been silent for 12 months. But the appeal was not heard. The U.S. Congress, to which the USSR Supreme Soviet put a further proposal to conclude a moratorium last year, is also silent. As far as can be judged, the United States generally takes a calmer attitude to this problem, perceiving it as a "necessary evil." For example, millionaires gather in Las Vegas, that world-renowned gaming house situated some 100 km from "Nevada," and do not complain of any radiation. And not because they are not concerned about their health. They know the radiation levels. "Although some of our deputies, activists in the 'Nevada-Semipalatinsk' movement, act out of good intentions and sincerely, still they do so without knowing the real state of affairs," Rear Adm. V. Vyskrebentsev, chairman of the state commission for the last experiment, expressed his opinion. And it is evidently impossible to disagree with him.

It is another matter that we have to resolve many organizational questions connected with regulating the tests and creating a legislative base them. For the time being certain questions here are being resolved by departmental acts—ordinances, in other words. Why, for example, was a mistake made when informing deputies of the time of the explosion? Because this is not yet clearly defined in documents. Although no test of a nuclear weapon is conducted without a decision by the government and the Defense Council. As for the time frame, it depends on the condition of the diagnostic equipment, weather conditions, and the technical preparedness of the experiment. As we see, it is extremely difficult to set the timing accurately in advance.

"I was informed of the timing of this explosion literally 2.5 hours in advance," V. Mikhaylov, USSR deputy minister of atomic power engineering and industry, said. "It is virtually impossible to calculate everything in advance down to the minute."

In fact, do we need to know the specific timing? What would it give us? In the United States, for example, the program for conducting tests states a great deal apart from their precise timing, once again for understandable reasons. We too have drawn up a program to modernize the country's nuclear weapons complex. It was approved in the Defense Council, ratified by the president, and recommended to the government for concrete realization. So maybe it is necessary to make public this program? Let people know how much it costs and how many explosions will follow in a year. And those who carry them out will determine their specific timing. I believe that such reasonable openness would remove many questions and do away with confrontation with public movements.

Or take this question. In Nevada there are state services to monitor radiation safety. But neighboring Las Vegas has its own laboratory which monitors in the interests of the state. Is it really not possible to think of creating something similar in Amderma or Arkhangelsk? Not everyone knows that the range has a statute approved in 1956 and kept at Arkhangelsk Oblast Soviet Executive Committee. It prescribes who must report what to whom. But it has evidently become obsolete in some respects. Who is preventing it from being brought into line with the present day? Finally, all of us, including our people's elected representatives, must learn civilized disagreement. So that we can argue and ascertain the truth like civilized people and not, say, throw ourselves under tanks in squares or incite the crew of a foreign ship, not even Greenpeace, to break the laws of our own country.

Speaking of Greenpeace, Rear Adm. Gorev said that the range's servicemen displayed tact toward its representatives who landed on our shore. They were taken to a hotel and given food. "Why don't you go on an inspection to China?" one of the officers asked them. "It is dangerous there," an Irish girl replied. At a recent news conference in Moscow USSR Deputy Foreign Minister V. Karpov said that the ambassadors of Nordic countries had treated with understanding the test which we conducted.

As for the professionals, the military, I believe that they must continue worthily fulfilling their duty. The country has entrusted its security to them, charging them with keeping formidable weapons at the ready. And, were something to happen, they would have to answer in a most responsible manner.

Nenets Group Protests Novaya Zemlya Test, Threatens UN Move

PM1411101790 Moscow PRAVDA in Russian 13 Nov 90 Second Edition p 6

[Correspondent G. Sazonov report under the "Ecology" rubric: "Concerning the Explosion in the Arctic"]

[Text] Naryan-Mar—The atmosphere of secrecy surrounding the recent nuclear test at the Novaya Zemlya range continues to worry the indigenous inhabitants of the tundra and settlers there.

"Yasavey," the association of the Nenets people, has protested against the explosion. A. Ardeyeva, its president, has sent Defense Minister D. Yazov a telegram about it. In its appeal to the country's leadership the association stressed that everything is done in secret at the test range without taking into account the opinion of the indigenous population of the north. It cites an occasion when the military refused to let a delegation from Arkhangelsk Oblast and the Nenets Autonomous Okrug onto Novaya Zemlya. Incidentally, the oblast soviet chairman and I were also refused entry.

Unless the present leadership of the USSR shows understanding, "Yasavey's" representatives intend to turn for help to the United Nations and a number of foreign countries in conducting an ecological examination on Novaya Zemlya.

The leaders of the people's movement "For a Nuclear-Free North" have taken an equally definite stand.

Statements from both social organizations have been published in NARYANA VYNDER, the okrug newspaper.

Soviet Official Reveals Increased Radiation Hazard Near Semipalatinsk

OW1311151990 Tokyo KYODO in English 1321 GMT 13 Nov 90

[Text] Hiroshima, Nov. 13 KYODO—Some 500,000 Soviet citizens living near the nuclear testing site of Semipalatinsk are suffering the effects of increased radiation, the head of the Radiology Research Institute there said Tuesday.

Boris Gusev, 52, in a press conference at Hiroshima University's Radiology Research Institute, said the

500,000 Soviets living near the testing site show incidence of cancer 40 percent higher and leukemia 50 percent higher than in other regions of the Soviet Union.

Gusev pointed out that the Soviet Union conducted over 200 above-ground nuclear tests from 1949 to 1965 and estimates that the half million people living within 550 kilometers of the test site suffered the effects of increased radiation.

The Semipalatinsk institute compared 20,000 people from the area with another 20,000 people from other regions and discovered that cancer of the esophagus was seven times more prevalent near the test site, while liver and lung cancer was three times higher.

Revealing his data for the first time in a foreign nation, Gusev reported that cases of leukemia increased by 70 percent between 1955 and 1960. In the meantime, the number of infants dying before their first birthday nearly doubled.

Including underground tests at the site, there have been more than 500 nuclear tests at the Semipalatinsk site, but because of the antinuclear outcry locally, no tests have been conducted since October of last year.

"A medical policy (for radiation effects) should have been established much earlier," said Gusev.

"We are thinking we would like to study as a group all 500,000 'bomb victims' (near Semipalatinsk), and would like to learn Hiroshima's methods," said the research institute director.

Report on Nuclear Test Site in Urals Denied

LD1511141790 Moscow World Service in Russian 1047 GMT 15 Nov 90

[From the "Soviet chronicle" feature of the "Soviet Union Day by Day" program]

[Text] No one is planning to transfer the nuclear test site from Semipalatinsk to the Northern Urals. No exploratory work in this direction is being carried out in the Northern Urals region. Viktor Mikhailov, USSR deputy minister of atomic power and atomic industry, told Interfax this in an interview, commenting on the Voice of America report which provoked a protest meeting attended by thousands in the town of Sverdlovsk on 28 October this year. Clearly, noted Mikhailov, these rumors are based on the fact that we are planning to close the Semipalatinsk test site in the next few years. There are two test sites in the Soviet Union—one in the Semipalatinsk area and one on the Novaya Zemlya islands. According to Mikhailov, in the current international situation, two test sites for the Soviet Union is too much.

However, the Semipalatinsk test site will not be closed in 1991. It is planned to carry out two or three test explosions there of a force of up to 10 kilotonnes. In accordance with the bilateral treaty approved by the USSR Supreme Soviet on 9 October 1990 [as heard], experts from the United States will be invited to the tests.

In the future, an account of the significant scientific potential of its personnel, it is planned, within the framework of the program of conversion, to use this test site to carry out work connected with the safety of atomic energy. Mikhailov also reported that it is planned to build a branch of the academic center for the training of specialists in the sphere of nuclear physics on the territory of the test site.

Seismic, Ecological Dangers at Dimitrovgrad Nuclear Waste Site

91WN0044A Moscow IZVESTIYA in Russian 5 Oct 90 Union Edition p 6

[Article from Ulyanovsk Oblast by M. Piskunov under the rubric "Returning to What Has Been Published": "The Mystery of the 'Nuclear Earthquakes'"]

[Text] **Last summer, IZVESTIYA (No 230) reported on earth tremors of unknown origin that occurred in the Ulyanovsk Oblast city of Dimitrovgrad. Suspicion fell upon the site [poligon] for burying liquid radioactive waste in operation at the Scientific Research Institute for Nuclear Reactors (NIIAR). IZVESTIYA proposed the creation of a commission, which would investigate the phenomenon. And lo, an interdepartmental commission visited the NIIAR—one of the nuclear power industry's largest scientific research centers. This commission had been created in accordance with the mission of V. Doguzhiyev, chairman of the USSR Council of Ministers' State Commission for Emergency Situations. It was, first of all, to determine the cause of the earth tremors.**

So, what did the commission determine? Fortunately, the subterranean shocks turned out to be unrelated to the burying of liquid radioactive waste (ZhRO) at the site. The interdepartmental commission stated: The cause of the seismic phenomena was detonations that were set off in the forested area to the west of Dimitrovgrad by the "Uralgeologiya" [Ural Geology] Association's (Bazhenovskiy) Geophysical Expedition. It is charged with performing shot-hole seismic sounding along the geodetic line from Tyumen to Krivoy Rog within the framework of the All-Union program for comprehensive investigation of the country's subsurfaces.

Indeed, the earth tremors and the detonations do coincide in time. Now, it would seem, one may breathe easily: The cause is clear. However, there have remained several unknowns about this seemingly obvious fact. These continue to worry the population.

The detonations were set off quite near the large nuclear center (eight reactors are in operation there!), but its management did not even know about them. Why? Unfortunately, there is no answer to this question. After the commission's departure, I sought out the necessary

documents, and convinced myself that the Ural geophysicists had acted in a "helter-skelter" manner. Either intentionally or by mistake, they mislocated wooded areas. A called-for point was located in an entirely different place—farther to the west by seven kilometers. And that is Melekesskiy Rayon territory. But there is still a difficulty in that the expedition's workers did not even have all of the necessary documents on the called-for points in that rayon. Thus, the oblast executive committee's decision on temporary allocation of the land for the geophysical work's performance was received considerably later—a month after the detonations. And the Ural geophysicists did not even apply to the internal affairs administration and the oblast mining engineering inspectorate for permits for Melekesskiy Rayon, although it is forbidden for them to transport or keep explosive substances without the former's permit and to conduct explosive operations without the latter's.

Furthermore, all is not clear either with the seismic effects that were caused by the detonations. Certainly, comparatively small charges were put into the shot holes—330 kilograms of TNT the first time and 420 the second time. However, the shocks were evident, not only in the forest, near the site of the detonations, but also in urban areas. According to specialists' estimates, the force of these was three to five points [on the 12-point Medvedev scale] and actually greater on the upper floors of buildings. What was the cause of this? The commission cited the heavy water saturation in the soil's upper layers due to the large amount of precipitation that had fallen. Nevertheless, there are loose ends. An extensive area—no smaller than 50 square kilometers—shook.

True, the commission, nonetheless, also took notice of a tectonic fault in its conclusion. In the opinion of scientists, the fault runs through Dimitrovgrad and alongside the NIIAR, and, in the opinion of others, its zone is at a distance from these. Nevertheless, the presence in these parts of a tectonic irregularity (be it even a supposed one) cannot but be alarming. Moreover, the pumping of liquid waste into subterranean places can also be a cause of earthquakes. Judging by the scientific literature, such phenomena have been observed in the United States and Japan, at oil fields in Siberia and the Bashkir ASSR, and in other places. Dimitrovgrad's situation is complicated by its being located in a point-5 zone and the fact that natural earthquakes have often occurred in the neighboring Tatar ASSR during recent years. That is why the interdepartmental commission came to the conclusion that it is essential to create constantly operating seismic and geodetic monitoring systems in the vicinity of the NIIAR. And this recommendation is fully justified: Operating eight nuclear reactors without having a single seismic station nearby is an extremely dangerous business.

And now, about the NIIAR waste site itself. In talks with members of the commission, I managed to make it clear that Dimitrovgrad is the only place in the world where a burial area for liquid radioactive waste has turned out to be in limestones. Limestones, as is well-known, are favorable for the development of karst. Is not this phenomenon also evident at the NIIAR waste site? Is there a full guarantee of safety? Indeed, about 2 million cubic meters of liquid radioactive waste have already been pumped in by now, and the burial area becomes fuller every month with thousands of more cubic meters of waste.

Now, when this fact has become widely known to the city's residents, they have begun to sound the alarm insistently. And one can understand them. The wells, from which the drinking water for the city is taken, are located three kilometers from the waste site. A therapeutic spa, at which water from a depth of 600 meters is used, also is located comparatively nearby.

And what opinion does the interdepartmental commission have regarding the waste site's future operation? The commission's chief, V. Strakhov, director of the USSR Academy of Sciences Earth Physics Institute, said:

"The conducting of an ecological expert examination of this facility was not included in our task. However, we have noted in our conclusion that the waste site's operation may be continued...."

However, representatives of the local authorities and public ultimately insisted that this point be entered in the commission's final document: An ecological investigation of the waste site, the deep-pit burying of the waste, and adjacent regions is to be conducted in the first quarter of next year.

Interview Reveals Geologists in Krasnoyarsk Used Nuclear Charges in Studies

OW2611084890 Moscow Television Service in Russian 1900 GMT 22 Nov 90

[Y. Sysoyev video report; from the "120 Minutes" program]

[Text] Modern methods of medical assistance are more than welcome. The well-known good health of Siberians has been a myth for a long time now. What is the reason for this?

[Begin recording] [Video cuts to show Sysoyev in a Krasnoyarsk street removing a gas mask] [Sysoyev] Excuse me, it is uncomfortable to speak while wearing a gas mask. However, there are days when one should not go out in the street without one. The powerful blasts of the local Khimmash [Chemical Machinery Plant], Sibmash [Siberian Machinery Plant], and other gigantic machinery plants cover the city with smog the likes of which even misty Albion did not dream of. It is their fault that the Yenisey River gradually is becoming a sewage swamp. The recently established Krasnoyarsk Survival Fund plans to oppose this.

[Video cuts to show Sysoyev interviewing P. K. Solntsev, USSR People's Deputy and chairman of the Krasnoyarsk Survival Fund, identified by caption on screen]

[Solntsev] Minenergo [Ministry of Power and Electrification], among others, planned to build many more dams on the Yenisey. We raised a hue and cry about it until we learned suddenly, thank God, that Sovmin [Council of Ministers], Gidroproekt [All-Union Planning, Surveying, and Scientific Research Institute], and our local departments had apparently agreed not to build any more dams.

Now, do you think this was because their conscience was bothering them? Of course not. It was because of all the radioactive dirt that would accumulate if we dam the Yenisey River below Krasnoyarsk. The silt would build up and radiation zones would arise, and there are enough of these already.

[Solntsev is shown removing a map from his pocket which he displays for the camera] I have a map here. This map shows that on the territory of Krasnoyarsk Kray alone in the seven...

[Sysoyev, interrupting] Excuse me, the map is not a secret one, is it? Can we show it?

[Solntsev] No, no, since the beginning of April all the data have been released. This is the history of the friendship...

[Sysoyev, interrupting] I can see Norilsk, Turukhansk...

[Solntsev, interrupting] Let me explain. It is the history of the "friendship" between Minsredmash [Ministry of Medium Machinery Building], which no longer exists, and Mingeo USSR [USSR Ministry of Geology]. In the 1970's and 1980's, to better probe the substrata, so to speak, they used nuclear charges instead of ordinary explosives in these bore holes. Roughly speaking, these were atomic bombs, and nobody knew about this. So you can see how many test sites there are on the territory of our kray alone.

[Sysoyev] One, two, three, four, five, six, seven, eight...

[Solntsev, interrupting] More than that, there were actually more.

[Video cuts to show newlyweds and friends at lookout point over the Yenisey River] [Sysoyev] Wedding parties continue to come to the Yenisey River. However, what awaits them and our children if we do not stop the ecological catastrophe? Who will live on these shores? [End recording]

Nordic Nations Pledge Financing in USSR Kola Peninsula Cleanup

91WN0045A Moscow IZVESTIYA in Russian
11 Oct 90 Union Edition p 4

[Article by V. Shmyganovskiy, IZVESTIYA staff correspondent, in Helsinki: "Billions for Ecology: Northern Countries Will Provide Assistance to the Kola Peninsula"]

[Text] **Finnish Prime Minister Harri Holkeri has informed his colleagues, the Norwegian and Swedish government chiefs, of agreements in the environmental-protection area reached with the Soviet Union in Helsinki. It was confirmed that these states will grant us a large, joint loan, totaling up to 3 billion Finnish marks, for cleaning up the Kola Peninsula's air mass.**

Environmental pollution is a problem that constantly clouds our relations with Finland and certain other northern countries. According to a number of estimates, a third of the forests in vast regions of Lapland may die because of harmful emissions from Kola Peninsula. In rather recent times, when "green glasnost" was not popular with us, only optimistic assurances resulted from all neighbor-country specialists' findings and policymakers' appeals. In revealing the truth to the Finns, as well as the Norwegians and Swedes, we have, first of all, come to know about it ourselves. We have come to know about it, and have been horrified by it. The enterprises of Nikel and Monchegorsk alone emit over 500,000 metric tons of sulfur dioxide into the atmosphere annually. All of these death-dealing clouds poison our land and our people first. In the news report "There Are No Borders in Ecology" (IZVESTIYA No 233), there was talk of intolerable procrastination in practical implementation of the agreements on ecology signed during M.S. Gorbachev's visit to Finland last year.

The implementation of these will require enormous funds. And now these funds have been found. Taking into account the serious ecological situation in our country, and their own interests above all (ecology truly knows no borders!), Finland, Norway, and Sweden will offer us a loan on, as Holkeri said, extremely favorable terms. The prime minister has promised to "remove the parentheses [limiting terms]" later, when specialists begin to implement the decisions made at the policymakers' level.

One of the enterprises—"Pechenga-Nikel" (its emissions amount to 270,000 to 280,000 metric tons of sulfur dioxide per year)—will be subject to radical reconstruction. The technology of the Finnish firm "Outokumpu," being used in 36 countries, including Japan and the United States, has been adopted as basis. The Soviet concern "Norilsk-Nikel" is a business partner of "Outokumpu." The favorable terms are repayment of the loans with the renovated combine's finished product—nickel.

According to the words of Olav Urvas, director of the "Outokumpu" Company, there is confidence that the sulfur emissions at "Pechenga-Nikel" will be cut almost to one-fifteenth of their present level by 1994 even as planned.

Part of the plant at Monchegorsk also will be converted to the Finnish technology, and emissions there will be reduced to a fraction of their present level because of this.

O. Urvas stressed that his firm previously just supplied equipment to the USSR and conducted its initial installation. Now the return deliveries will link the two countries' metallurgists even more closely. The firm actively sought this order. However, the size of the forthcoming jobs is somewhat alarming: Will everything somehow fall into place?

"We know the USSR foreign trade organization well," O. Urvas confided to me. "Very involved negotiations will be forthcoming. But we hope that the deal will nevertheless be mutually advantageous and profitable."

That, to which we have already begun to become unaccustomed, is appearing in Soviet-Finnish relations—large scale in joint projects. V. Doguzhiyev, chairman of the USSR Council of Ministers State Commission for Emergency Situations, signed the agreement on our part at the intergovernmental level. It was emphasized that the parties were proceeding out of a need for "timely cleanup" of the environment in the Kola Peninsula region.

Dumped Radium Causes Contamination Scare in Vladimir

PM1411171390 Moscow Television Service in Russian 1530 GMT 13 Nov 90

[From the "Vremya" newscast: Report by S. Vetoshkin, V. Privezentsev, identified by caption]

[Text] [Newscaster] Here is a report from Vladimir.

[Reporter] At first it was thought that they could manage it by 1 November, but now the snow has already arrived, and take a look how many red markings there are on the stakes. Under each of them is a radiation source. The deeper down you dig, the stronger the emanation. This is retribution for old sins, for our criminal carelessness.

In the sixties this spot was on the outskirts of the city, there was a deep ravine here, and all sorts of things were dumped here, including the notorious radium-226 which was used as a luminous paint for all sorts of purposes from medicine to children's toys. After Chernobyl it was decided to carry out a gamma-ray survey in all cities in Vladimir Oblast. And the radiation meters registered particularly high readings precisely here, in the vicinity of the Fakel Cinema, two institutes, and student hostels. The Shepeto Circus camped here virtually every summer, and people are saying that potatoes were even planted in this field.

Naturally, the most improbable rumors are circulating in the city, both about the ravine and about radiation levels. Here we are literally a few steps from a major source of contamination. What does the radiation meter register, Sergey Aleksandrovich?

[S.A. Makarenkov, Moscow Rodon Scientific Production Association radiation monitor, identified by caption] The geiger counter is registering 14-15 microroentgens/hour. That is normal background radiation.

[Reporter] Let's show the television viewers so that they believe us. You see, the reading shows around 15 microroentgens. Yet deep in the ground over there radiation rises to 10,000 microroentgens. That is very severe contamination.

[Makarenkov] Yes, it is severe contamination, of course. It must be eliminated. That is beyond question.

[Reporter] Naturally, only volunteers could be invited to carry out this work. And people have come forward: 12 workers from the precision engineering plant, the Elektropribor Plant, and the oblast hygiene and epidemiology station.

Plan for Cherepovets Coking Plant Evokes Environmentalist Reaction

91WN0044B Moscow PRAVDA in Russian 13 Oct 90 Second Edition p 3

[Article from Cherepovets and Vologda by P. Kuzmin, senior assistant to the Vologda Oblast Procurator, and G. Sazonov, PRAVDA correspondent, in the "Ecology: The Hot Spots" column: "Under a Cap of Smog"]

[Text] **A few days ago, the Cherepovets Ecology Club urged its supporters to express their opinions regarding the construction of a new coke-oven battery. Let us try to find out to what extent the action of the "greens" [environmentalists] is justified.**

Little Cherepovets was renowned among the old Russians as a fishing town—"Here you have pike-perch pie, sun-dried bream, and freshly salt-cured pike." But today.... Flying toward the city in an airplane, you see, long before its outlines are on the horizon, how a mushroom-shaped smog hides the sun—like the plume of a mighty explosion.

Can it be that everything will look different if you approach by railroad?

No, even the train does not change the picture. No matter from what side you approach Cherepovets, you will still find yourself in a forest of smokestacks—smokestacks of differing sizes and different heights, venting smoke of all imaginable color combinations. One recalls that singers and musicians, not very long ago at all, used to celebrate industrial beauty, setting it above the charm of fields and forests: "The open-hearth furnaces burn; both day and night they burn...."

The furnaces, of course, are burning even now, but, alas, they evoke, not delight, but rather—displeasure. Last year, the metallurgical combine discharged into the atmosphere, without cleaning, 584,000 metric tons of polluting substances, and among these, having toxic effects, were carbon monoxide, nitrogen dioxide, hydrogen sulfide, and ammonia.... During the same year,

the giant of industry poured 42 million cubic meters of polluted industrial effluents into surrounding bodies of water.

It is no secret that all violations are by no means noted. The monitoring services do not take air and water samples on their days off. And, during the night hours, in the striving for "production volume," the technology is not adhered to in the shops, and the cleaning systems are disconnected. The city often awakes as if from a drugged sleep. And, "for the combine's sake," its effect on the biosphere and, consequently, on people's lives is also felt in a surrounding area about 50 kilometers in radius. The question is before us: How is the situation to be improved without infringing on the interests of the metallurgists and practically all of the Soviet Union's machine-building enterprises along with them?

"At some time in the past, the planners made a big mistake in locating Cherepovets' industry," opines B. Limin, Vologda Oblast's chief public health physician. "The plant and the city were erected on essentially the same site. For over 20 years, 4.5 percent of all capital investment was spent on environmental protection. That is where the cause of the ecological neglect lies."

Some sort of "shock" was needed. An accident at the coke and coke chemicals production plant [koksokhimproizvodstvo], which caused serious pollution of Rybinsk Reservoir and a sensation in the press, became that shock. Thanks to the persistence of workers in the prosecuting attorney's office [prokuratura], who pressed the investigation to completion, the former Ministry of Ferrous Metallurgy [Minchermet] "generously" paid 19 million rubles out of the state's pocket to replenish fish stocks for the mismanagement and negligence. Except for the former chief engineer of the coke and coke chemicals production plant [koksokhim] and the shop boss, who paid 5,000 rubles through the court, and were released from criminal accountability because of a pardon, not one of the department's executives suffered.

However, that terrible coke and coke chemicals production plant salvo on the Volga Basin did make some things change. Now, Director Yu. Lipukhin's working morning begins with ecology: Investigation of violations is made, and punishments are pronounced.... The combine laboratory's authority in environmental protection has been extended right up to the shutdown of plants that are causing danger.

"A program for environmental improvement has been prepared here," the director said.

In Cherepovets, hopes are pinned mainly on investments, limits, and contracts. And these are important, but are causes and effects not being confused in this case? Indeed, however perfect the catchment and sedimentation basins, it is hard to expect improvement unless a change in technology is made. In this country, for example, there is already experience in blowing the coal raw material into blast furnaces, which procedure sharply reduces emissions. However, the procedure is not yet being used in Cherepovets.

On the other hand, it is possible to ease the lives of thousands of people even today, without any sorts of costs or particular efforts. In the course of a year, according to the public health physicians' data, there occur about 40 to 45 bad days for the city. Adjust the programs for those days, reduce the work load on the plants—and you can cut down the pollution. There are other possibilities—the elementary observance of discipline at the plant, the turning on of all cleaning systems, and the presence of ecological standards, the development of which is within the capabilities of the combine's central laboratory, in the workplace. These alone, according to specialists' assertions, could help reduce emissions by 15 percent—by tens of thousands of metric tons.

At the end of 1989, the metallurgical combine's coke and coke chemicals production plant permitted a volley discharge of effluents containing oil products into the Sheksna River. These got into the Rybinsk Reservoir—near Baganikh Island the phenol and resin contents exceeded all norms. The oblast prosecuting attorney's office determined the cause of the mishap: unsatisfactory operation of the primary coke and chemical recovery shops. By means of arbitration, the prosecuting attorney's office fined the combine 193,000 rubles for the damage done. The criminal case was dropped. However, we wish to call attention to the following detail. It turns out that the discharge of condensate—saturated with toxic substances—into the sewer system is called for at ferrous metallurgy enterprises' gas plants by safety rules established by the USSR State Committee for Supervision of Safe Working Practices in Industry and for Mine Supervision [Gosgortekhnadzor SSSR] and coordinated with the USSR State Construction Committee [Gosstroy SSSR].

Some time ago, a law on protecting the atmospheric air was passed. However, it turned out to be ineffectual. Why? The law was enforced in accordance with the economic and social development plans, and in these, as you know, top priority was by no means assigned to ecology.

The word "problem" shows up more often than others in Cherepovets citizens' vocabularies. Yes, there are problems enough in the city. However, the ecology problem holds sway over all. The people understand: Their own and their children's health, working ability, and, in the final analysis, well-being depend upon it. And what is taking place before their eyes? The residents are being resettled from Mir Street, which is quite near the combine, for example, but, at the same time, a swimming pool is being built and high-rise apartment houses for the "Ammofos" [Ammonium Phosphate] Association erected on that same street with the tacit approval of the party's city executive committee [gorispolkom]. Strange:

With one hand the organ of Soviet power supports the ecology's betterment and, with the other, settles people next to the smoking stacks.

The city's authorities have not reached the point of solving environmental protection problems comprehensively. Then, too, there is the following aspect of the problem. The reconstruction of existing plants and the erection of new ones are often done without ecological expertise. The combine and city executives declare that the atmosphere in Cherepovets will improve and the bodies of water become cleaner approximately by the year 2000. We heard such promises 5, 10, and 15 years ago. However, they were not kept because rolling mill "2000" was erected, and the largest blast furnace in the country was built, and for that reason, they say, there was no time to pay attention to ecology. Just such a tendency also is in view for the immediate future. We make our judgment about this on the basis of the Cherepovets Metallurgical Combine's expansion plan prepared by the Leningrad State Institute for the Design of Metallurgical Plants [Lengipromez].

Here before us is the conclusion on the plan reached by Yu. Bazanov, chairman of the Vologda Oblast Environmental Protection Council. "The combine's expansion in recent years has been conducted without the development of a set of measures to protect the environment," he noted. "The addition of new capacities has not been linked to the shutdown of run-down and ecologically untrustworthy plants." The defective practice, however deplorable, continues. In the plan, it is intended to erect coke oven battery No 11, quite possibly the largest such battery in the country. Why such a big one? They say: There is a shortage of coke. Well then, build the sort that will eliminate the shortage. No, they have espoused the giant battery. Although world science and experience have proved that giant plants are unwieldy and have low efficiency for the most part, the oblast environmental protection committee has given the "OK" to the new construction....

"There are no guarantees," admitted N. Okunev, chairman of the Cherepovets City Environmental Protection Committee, "that the new battery will not worsen the ecology, and, what is more, its construction has been started within city limits. In my opinion, the imbalance that they have been talking about for 20 years at the combine has been brought about by the combine and the Ministry of [ferrous] Metallurgy themselves. They built a gigantic rolling mill—let us have a gigantic blast furnace near it. This furnace eats up a lot of coke, and the coke ovens are not sufficient for it—build a giant coke oven battery...."

Besides the new battery, a large new sintering machinery complex and reconstruction of the oxygen-converter, cold-rolling, and curved-shapes shops are called for in the plan. This is additional and substantial environmental pollution. From what source is the improvement to be expected?

Production volumes are increasing at the combine, along with low-quality in metal rolling. Many systems in the shops are functioning at their limits. For months, they are not stopped for maintenance, which also creates a danger to the ecology. Finally, let us also remember that the metallurgists' introduction of new capacities will require new working hands, and where are these to be obtained? In the country [rural areas]? But the country is already dying....

In our discussion of the ecological situation in Cherepovets, big chemistry's enterprises remain unnoticed—two associations, "Ammofos" and "Azot" [Nitrogen]—but they also do their bit in worsening the atmosphere. "Ammofos" developed a justification for increasing the production of sulfuric and phosphoric acids, but it did not worry about reducing emissions of nitrogen oxides, carbon monoxide, and other substances. Huge cinder pits, not far from the shops, are filled to the limit with production waste—pyrite cinders. Nobody has studied or is studying the effect of these on the groundwater, on the Sheksna's infrabed waters, and, ultimately, on the Volga.

The country needs metal, fertilizer, liquid nitrogen, etc. Not, however, at the price of destroying the environment and shortening the length of human life. Let us remember the rule: Better less, but better. The people expect a law from the parliament that will help to preserve the environment—the fountainhead of being. However, they themselves should not sit around doing nothing. Much can be done locally.

Daugava River Chemical Spill Causes Damage in Riga

LD1311231190 Moscow TASS in English 2207 GMT 13 Nov 90

[Article by TASS correspondent Aleksandras Budris]

[Text] Moscow November 14 TASS—Latvian specialists estimate the damage caused to Riga, capital of Latvia, as a result of the pollution of the Daugava River after the accident at a chemical factory in Belorussia, at 300 million rubles.

Ilmar Biser, Latvian deputy prime minister, told a briefing at Latvia's permanent mission in Moscow on Tuesday, that residents of Riga do not receive today about one third of water needed by them. For this reason, a considerable number of schools and kindergartens are closed in the city and 20 percent of industrial plant shut down.

According to Biser, the situation is aggravated by the lack of laboratory equipment needed to test all toxic agents dumped into the river. He said the Latvian authorities had not received as yet clear and authentic information about the time and circumstances of the accident in Novolipetsk and the amount of products spilled into the river. In Latvian specialists' estimates,

toxic agents began seeping into the river on October 31 and their account can reach 60 tonnes.

Speakers at the briefing said that measures taken in the republic to localise the aftereffects of the ecological catastrophe already enabled authorities in the city of Daugavpils to switch on its water-supply system. At the same time, the danger of polluting the coastal waters in the Baltic Sea, into which the Daugava flows, is still preserved.

Pyort Kucherin, a department head at the Belorussian permanent mission in Moscow, said at the briefing that the release of toxic agents had been the result of the chemical factory workers' negligence.

He said chemical factory's operators did not turn off a pump directing the toxic agent into tanks on November 3. Once this agent reaches the water, acetone and various cyanides are formed. About eight tonnes of the toxic agent seeped into the soil and underground waters washed it out into the Daugava.

Kucherin said that a Belorussian governmental commission was investigating the circumstances of the accident and the Belorussian public prosecutor's office launched a criminal investigation.

Daugava Chemical Pollution Hits Daugavpils Water Supplies

PM1411123390 Moscow Television Service in Russian 2030 GMT 11 Nov 90

[From the "Television News Service" newscast: Report by N. Kasyanova and A. Zanderson, identified by caption]

[Text] [Reporter] Reports about shoals of dead fish in the Daugava River set alarm bells ringing at the Latvian Hygiene Service and literally saved Daugavpils city from a catastrophe. The city draws its drinking water from the river. It has been possible to clarify that the trouble was caused by an accident at the chemical combine in Novopolotsk. Cyanides were washed into a river which flows into the Daugava.

[V.Ye. Derkach, Latvian chief hygiene expert, identified by caption] Only three days later did we learn that the chemical washed into the river was not cyanide, but another even more dangerous chemical—acetone cyanide hydrin. It is a hundred times more dangerous than cyanides. You can imagine what could have happened to the people living along the banks of the Daugava River and using this water.

[Reporter] As drinking water?

[Derkach] Not just as drinking water, but for other domestic purposes.

[Reporter] It is envisaged that the emergency situation in connection with this accident will last up to 10 days.

Radiation Hazard in Brest Worse Than First Thought

PM2211165390 Moscow Television Service in Russian 1230 GMT 22 Nov 90

[From the "Television News Service" newscast: Report by A. Guretskiy, identified by caption]

[Text] [Newscaster] As reported earlier, an area of radioactive contamination has been discovered in Brest.

[Reporter] The danger was found to emanate from soil which appeared quite normal at first sight, or rather from remnants of radioactive raw material which was transloaded here at one time. What is more, the site is located only a few hundred meters from the main entrance to Brest Fortress and in the vicinity of a residential area.

Specialists from the All-Union Experimental Physics Scientific Research Institute have had to correct the original estimate, but alas, not for the better. While at first the counters registered 600 to 700 microroentgens/hour here, individual locations have now been discovered where the radioactive pollution totals 2,500 [microroentgens/hour] and exceeds normal background radiation several-hundred-fold.

What, in your opinion will have to be done here to eliminate this threat?

[O. Zhemchuzhin, identified by caption] The city soviet executive committee is now paying 200,000 rubles just for investigation work. When this has been completed, it will be necessary to remove all this soil. Naturally, the quantities involved will be considerable—in the region of several thousand cubic meters. And the main point is not just removing the soil, but finding somewhere to bury it. This is now the number one task.

[Reporter] This is the legacy of the predecessor of the current Ministry of Atomic Energy and Industry. The question arises as to who should foot the bill. The meager city budget does not contain that kind of money. Especially since this terrible site in Brest is not the only one. And work to remove it must be stepped up.

Ecological Implications of Expanding Armenia's Razdan Power Plant

91WN0078A Yerevan GOLOS ARMENII in Russian 18 Oct 90 pp 1-2

[Article consisting of statement by the Razdanskiy Rayon Ecological Group and response by Candidate of Technical Sciences S. Minasyan, YerPI [Yerevan Polytechnical Institute] assistant professor: "Razdan GRES: Pro and Con"]

[Text] **Today the Razdan GRES [State Regional Electric Power Station] provides almost 50 percent of the electrical**

energy produced in the republic, with the losses here constituting only 5.9 percent, as compared to the standard of 7.5 percent.

As a result of the sharp reduction in the production of electrical energy, partially as a result of the shutting down of the AES [nuclear electric power station], a large shortfall in electrical energy and capacity has been formed in the Armenian energy system. In order to cover this shortfall, it is necessary to activate additional capacities for producing electrical energy. An important reserve here is the expansion of the Razdan GRES.

However, the attitude toward this problem is diverse. There are proponents of expanding the GRES, and there are opponents. The editorial office has decided to give the floor to both sides. One thing is obvious: it is necessary at all costs to resolve this problem, since the republic today needs a continuous supply of energy.

To the Detriment of Ecology?

The 11 March 1989 issue of IZVESTIYA printed a report concerning the results of a meeting between the USSR Supreme Soviet's Foreign Affairs Commission with parliamentarians from foreign countries. That report mentioned, among other things, the union's state policy with regard to environmental questions and stated that "we must not develop the economy to the detriment of ecology."

But in an article written by Armglavenergo [Armenian Main Power Engineering Administration] Chief F. Akopdzhanyan (KOMMUNIST, 4 April 1989) it was emphasized in boldface type that the only—yes, only!—path for bringing Armenia out of its energy disbalance is to build up the network of thermal electric power plants.

But the Soviet Union is a member of the Thirty-Percent Club, which means that by 1993 we must reduce the amount of sulfur dioxide spewed into the atmosphere by almost one-third. Actually, however, it turns out that Armglavenergo and Minenergo [Ministry of the Energy Industry] are against the international and union program for the ecological improvement of the environment.

The author's logic is absolutely incomprehensible and unacceptable also from a purely mathematical point of view. While acknowledging that the shortfall of electrical energy in the republic comes to approximately 200 megawatts, nevertheless, for incomprehensible reasons, Armenia intends to create capacities that are 15 times greater than needed: the Razdan GRES, 1200 megawatts; the Yerevan TETs-2 [Heat and Electric Power Station], 750 megawatts; the Oktemberyan TETs (a redesigned AES), 600 megawatts; GAES, 800 megawatts; and dozens of small GES [hydroelectric power station] with a total capacity of 300 megawatts, disregarding the nontraditional sources of electrical-energy production. And all this is with a planned introduction of less power-intensive technological schemes in the national economy! In a word, the republic needs 200 megawatts, but the intention is to produce 3650 megawatts!

According to the author, the crux of the program for compensating for the shortage of capacities is, first of all, the expansion of the Razdan GRES by 1200 megawatts. Leaving mathematics aside, we would like to ask a more important question: to what extent is it economically "profitable" to ship in fuel from a great distance, and to contaminate the area's unique health-resort and therapeutic zone, in order subsequently to pump—with considerable losses—electrical energy to remote regions and neighboring countries?

One asks why a GRES could not be constructed close to the center of the energy system, right next to fuel sources (for example, in Groznyy or Baku), thus precluding the expenses involved in transporting the fuel and the energy losses on the electrical-transmission lines. The detriment caused to the environment from the toxic emissions can be computed somewhat even now. But who will compute the damage caused to the health of several hundreds of thousands of people, and of our children who are staying at Young Pioneer camps or sanitoriums in Razdanskiy Rayon and neighboring rayons? Because human life and the nation's future do not have any price!

We are categorically opposed to expanding the Razdan GRES in the face of the present serious ecological situation that has developed in the rayon. We are opposed to a program that has not been substantiated from any points of view and that does not conform to the interests of the Armenian nation or the interests of perestroyka. The expansion of the Razdan GRES is a continuation of the old course taken by USSR Minenergo in constructing gigantic projects.

In Canada, even before the receipt of authorization to implement any project—for example, the laying of a gas pipeline—a survey is conducted among the local population, and if there is a negative attitude the construction plans are either entirely rejected or are mothballed until they have been completely modified. Why not conduct this kind of survey in our own rayon, because our rayon is a place where residents in the entire republic come for rest and recreation.

According to the Constitution, the land, air, and water, and all of the environment belongs to the nation (and to that part of the nation that is residing in the particular sector of the environment), and therefore neither Minenergo nor Armglavenergo has the right to take a cavalier attitude toward handling our environment as though it were their own (departmental) property.

Today we must not repeat such mistakes and miscalculations as the construction of the Razdan Chemical-Mining Combine, the cement plant, the reservoir on the Marmarik River, the Armenian AES, or other similar projects. Let the experts cite facts proving to everyone that the expansion of the Razdan GRES will not harm the environment or people. and then they create capacities of a million megawatts if they want to. We raise

both hands in favor of implementing ecologically clean projects (or those that fall within the admissible limits).

Proceeding from what has been stated, we make the following recommendations. First, we recommend holding a meeting with the participation of all the interested parties for the purpose of discussing the question of the desirability of expanding the GRES. Secondly, pending the making of a final decision, we recommend the temporary cessation of the construction of the power plant. Thirdly, we recommend creating a state commission to provide an impact assessment for the technical-economic substantiation (TEO) for expanding the Razdan GRES, with the participation of public environmental-protection councils and ecological groups. And, finally, we recommend conducting a public-opinion survey in order to make the final decision with regard to the power plant.

Razdanskiy Rayon Ecological Group

With a Thought About Nature

An extremely unfavorable situation has developed in our republic. The pollution of the air above Yerevan, Kirovakan, Charentsavan, Razdan, Alaverdi, and other cities gives specialists serious food for thought.

Despite the fact that the republic's Council of Ministers has taken radical steps to improve the republic's ecological state, a serious ecological situation has arisen in the city of Razdan. Here, alongside of the harmful production of cement, there is a very large-scale power plant for energy production, although one cannot fail to recognize the tremendous contribution that the Razdan GRES has made to the national economy during a period that has been so difficult for the republic. Within the next five years the capacity at the electric power plant will increase. In conformity with the plan for expanding it, provision is made for special ecological measures.

Today it is obvious to everyone that, because of the lack of resources, within the very near future we can expect an energy crisis. That crisis is already knocking on the door. As has been demonstrated by the sad experience of last winter, we must accept as our motto the principle "Energy today, energy now!" From this point of view, the expansion of the Razdan GRES requires the shortest construction periods, as compared with other alternatives.

The Razdan GRES will burn only gas, which at the present time is the ecologically purest fuel in the world.

Emotional statements to the effect that the environment is being polluted and that it is better to use candles instead of electricity create, unfortunately, against the background of public opinion, considerable difficulties in performing work. The fact that, in the developed capitalist countries, the expenditure of electrical energy in everyday life exceeds by a factor of several times our own consumption, confirms the truth. It is necessary to think not about reducing the production of electrical energy, but of channeling all our efforts and knowledge into the use of the existing methods and the development of new methods for reducing the toxic emissions and for introducing modern, ecologically pure technological schemes for producing energy without waste products.

The decision that was made to expand the Razdan GRES with energy units that have a capacity of 300 megawatts each, that possess high technical-economic features, and that are equipped with a modern system for controlling the technological processes, is the only correct and intelligent decision at this stage of development of our republic's national economy. This guarantees a gas energy "intermission" that is so necessary to develop ecologically pure nontraditional technologies for energy production. These units have a greater capacity for creating the appropriate conditions and optimal operating modes for burning gas fuel (low-temperature mode), and for purifying the gases of harmful emissions.

In this direction a large amount of work is being carried out by the collective at Razdan GRES.

For example, on the initiative the power-plant leadership and the Southern Branch of the All-Union Thermal-Engineering Institute, by decision of USSR Minenergo, a special ecology laboratory has been created at Razdan GRES.

The questions that lie at the basis of its activities are the questions of monitoring the furnace gases and the purity of the atmosphere; the resolution of the technical problems linked with the assimilation and broad introduction of renewable natural sources of energy, including solar and wind energy, as well as research and introduction of systems for purifying the emissions and waste products of the thermal-engineering equipment, that guarantee their ecological purity. The laboratory also engages in problems of assimilating nontraditional methods for obtaining energy, that use heat pipes and bio-energy engineering, and in the development and practical application of technological schemes that store energy.

As of today, the laboratory is equipped with modern instruments for monitoring domestic and foreign production. Highly skilled specialists work here.

I would like to express my personal opinion concerning the judgments and conclusions of the Razdanskiy Rayon Ecological Group.

First of all, the statement concerning 3650 megawatts. Where does that figure come from? From newspaper columns with recommendations based on journalistic fantasies, or from other "sources." The set of capacities cited cannot be viewed as anything that will actually exist in the system either tomorrow or the day after tomorrow.

It is necessary to exclude from this list, if only for the next five or six years, a redesigned AES or GAES [pumped-storage hydroelectric station].

Can the ecologists answer the question as to where, when, and by whom an AES with a capacity of almost a million and with 15 years of work done was redesigned? Or shall we put our hopes on the Soviet "experience" of building a GAES as represented by the example of the Zagorsk Power Plant, that has been under construction for 23 years!

What, then, does the Razdanskskiy Rayon Ecological Group propose? Building a power plant in Baku or Groznyy and shipping the energy to Armenia! Are we really supposed to believe that people can reach such a degree of naivete in the present-day situation in which our republic finds itself? Or to put our hopes on the obsolete and rundown equipment at the Razdan GRES and YerTETs?

But this is similar to suicide. The rings on our gas hotplates are currently being extinguished, and we are talking about the ecology. Is it really important to a drowning person whether the water he is drowning in is dirty or clean? All the ecological computations made by the authors are acceptable and indisputable in any normally developing country. But we are living under blockade conditions, under conditions of economic and political chaos, and therefore the ruminations about the ecology have minuscule value if our children tomorrow will have to live under conditions that are far from comfortable.

The Razdan GRES must build up its potential by 500-600 megawatts within the next two or three years. This is an imperative of today. This is not a surplus. This will go to cover a shortfall that, incidentally, is considerably greater than is noted by the authors of the ecological letter, to supply energy to the currently inactive enterprises and housing sector in the disaster zone, and to conserve the worn-out equipment at the GRES itself, the resources of which will reach their limit within five to seven years.

The Razdan-Ankavan recreational zone is dear to each resident of Armenia. But the fate of Armenia itself has been placed on the other side of the scales. Why do we need specifically the Razdan GRES? Because, for ecological reasons, this is the most beneficial alternative—a well-developed infra structure, highly skilled personnel, construction that has already been begun—and any attempts to put its construction in mothballs are evidence of incompetence.

I would like to say: listen to the discussions from high rostrums about Nairit and about the Armenian AES, and be realists!

Candidate of Technical Sciences S. Minasyan,

YerPI assistant professor.

Perceived Plan by French Firm To Exploit Astrakhan Oil Alarms Public

Fears Outlined

91WN0040A Moscow SOVETSKAYA ROSSIYA in Russian 26 Sep 90 Second Edition p 5

[Article by Yu. Chuykov, chairman, Astrakhan Oblast Soviet of Peoples' Deputies Standing Commission on Ecology and Rational Utilization of Natural Resources: "Attempt by Contract: French Oil Company Threatens Astrakhan Kray Environment"]

[Text] Advertisement is the engine of progress. We are gradually becoming accustomed to this, ceasing to be surprised and wide-eyed when we come upon the hectare-long names of foreign firms in the newspaper pages. But all the same, a recent series of advertisements in PRAVDA struck hard upon the nerves of thousands of Astrakhan residents. Under its "miracle-making" influence, telephones in the officials' reception rooms came alive, meetings began to roar, and inquiries took flight to the obkom, the oblispolkom and higher—to Moscow, the government of Russia and the country. It looks as if the magical advertisement for the French company ELF Aquitaine (which this article is about) has performed a dubious service. But let us take everything in order.

At first glance, there is nothing special about the advertisement's text. Statistics are quoted on the company's annual turnover and other financial indicators.

Eighty of the world's countries have trusted this company to carry out petroleum product exploration under their soil. Remarkable! And how can one not be pleased that ELF Aquitaine does not forget about people's health and the attractiveness of our women, contributing funds to more than 100 medical, perfume and other firms. So what is so bad? This is: this time, the object of the company's interest is the Volga delta and the North Caspian. Let's read the text of the advertisement more carefully: "An historical date. On May 23, 1990 in Moscow, Mr. Nikitin, USSR Oil and Gas Ministry first deputy minister, and Mr. Le Floch-Prigent, president of the ELF Aquitaine company, signed the first large-scale agreement on oil exploration and processing in the USSR. On a territory measuring greater than 35 thousand square kilometers on the Volga delta, the USSR is opening its underground riches to a foreign oil partner for the first time."

It was these lines that upset the Astrakhan residents. They thought that the historical date was a completely different one—February 23, 1990, when a special session of the oblast Soviet announced that the entire territory of the oblast was an ecological disaster zone. In the resolutions of the session it was written that remedying the ecological situation would be impossible without basic changes in the national economic structure and the establishment of an ecological priority. But what does it matter to the Misters Nikitin, Salmanov and even more, to Le Floch-Prigent, that the environment is dying in a

once rich and beautiful region, that people's health is worsening, and that the agriculture and fishing industries are on the brink of disaster due to the catastrophic pollution and destruction of the natural environment. What is being threatened are the delta lowlands, the territory and the waters of the Astrakhan State Biospheric Preserve and the wetlands. Incidentally, our country is responsible for these things according to international agreements. The session has appealed to the Supreme Soviet and to the USSR Council of Ministers with a request that they declare saving the Volga a national task, that they develop and finance a general government project to save it, and that they proclaim the North Caspian and the Lower Volga reserve zones.

And isn't the Soviet-French contract, which would hand over the last untouched corners of the Volga delta and the Caspian to the petroleum industry, the answer to this request?

Incidentally, it is exactly these places that the governments of Russia and Kazakhstan announced to be reserve zones, where only fishing and water transport would be developed. What happened to republic sovereignty? Where then is the people's right to administer the natural resources of their native land? We are being asked these kinds of questions by our deputees and our voters. And we don't know how to answer them. Because nobody asked for our approval, nobody listens to our decisions.

Besides, the Astrakhan residents, unlike the directors of the French firm, know that this is by no means the first time that the "USSR has opened its underground riches" to foreign firms. Only the best of Western technology was used, if one is to beleive the directors of the Gazprom concern, in the construction and start-up of the Aksaraysky Gas-Refining Complex. After three years of illegal operation, it was declared economically and ecologically bankrupt. Astrakhan residents feel fear and hatred towards it. Informal ecological organizations in the oblast are threatening a public suit against the directors of the complex. The oblast procurator has appealed to the oblast Soviet of People's Deputies for approval to institute criminal proceedings against the general director of the Astrakhangazprom Production Association, who is a people's deputy. Of course, no public suit or criminal trial will solve all the ecological problems in one stroke. They will not solve them as long as everything in the country is decided somewhere there, at the top. And we here, "below", will be the ones who pay for it, still not knowing where we have the authority or not. And what kind of progress is an advertisement like this "driving forward"?

Deputy Minister Refutes Claims

91WN0040B Moscow SOVETSKAYA ROSSIYA in Russian 14 Oct 90 Second Edition p 3

[Article by F. Salmanov, first deputy USSR minister of geology: "An Error Begets an Error"]

[Text] Respected editors! I would like to make some corrections in the article by Yu. Chuykov, "Attempt by Contract," which was published in the newspaper SOVETSKAYA ROSSIYA September 26, 1990. It talks about cooperative work with a French oil company that allegedly presents a threat to the environment of Astrakhan Kray. The material referred to was occasioned by the firm's July 14, 1990 publication in PRAVDA of advertising material that allowed an irritating lack of accuracy in reference to the geographical location of the region for the proposed projects.

In reality, an agreement was signed May 23, 1990 with the ELF Aquitaine company on basic principles for cooperation in the exploration, research and development of hydrocarbon deposits in regions that have been agreed upon in the Volgograd, Saratov and Aktyubinsk Oblasts of the USSR.

The article provides the reader with disinformation, evoking a lot of talk about "squandering the underground riches of the Astrakhan Oblast" and that the state of the environment is getting worse, talk which will produce a negative effect on attempts to attract foreign firms to work on projects in the country as a whole. The region of operations for the company that has been formed does not concern the Astrakhan Oblast at all, and certainly poses no threat to its environment, as it is located in the northeastern part of the Volgograd Oblast all of 600-700 km from the Caspian Sea. The author should have figured out the geography of the region of operations before sending his article to the newspaper.

One of the elements of curing the country's economy is the attraction of foreign capital, of new environmentally clean technologies, of modern technical methods that are lacking in the USSR, in part through the creation of joint (with foreign firms) enterprises. The concept referred to is a basic ingredient of all economic programs, including the RFSFR's.

One joint enterprise of this type is being formed on the basis of oil deposit exploration, research and development in the Volgograd, Saratov and Aktyubinsk Oblasts of the USSR by the French firm ELF Aquitaine, the USSR Oil and Gas Ministry [Minneftegazprom] and the USSR Ministry of Geology [Mingeo]. The regions of operations were agreed upon with the local soviets, as well.

The region of operations differs greatly from the Astrakhan region in its economic conditions (specifically, in the content of hydrogen sulfide). A discovery of hydrocarbon deposits with a hydrogen sulfide content of up to 1 percent is predicted. Incidentally, at the Astrakhan gas refinery deposit, the sulfur content was greater than 20 percent.

At this time, the ministries are doing a lot of work towards preserving the environment. The attraction of foreign firms that are considered authorities all over the

world on ecologically clean technologies will be of advantage not only for the region, but for the country as a whole.

A word of advice to the author—Comrade Chuykov, chairman of the Standing Commission on Ecology. Before writing an article for a newspaper, in order to orient oneself correctly on the issue, it would have been necessary to consult with specialists. If this had been done, the question "what kind of progress is an advertisement like 'driving forward'" would never have been asked.

The newspaper SOVETSKAYA ROSSIYA enjoys great authority among Soviet people. Its authority would be even greater if its published materials were verified. It is most unfortunate that the beloved newspaper has repeated the irritating lack of accuracy that was permitted in PRAVDA's advertising material.

Handling of Railroad Toxic Spill in Kuybyshev Oblast Criticized

91WN0121B Moscow IZVESTIYA in Russian 18 Nov 90 Union Edition p 4

[Article by IZVESTIYA correspondent S. Zhigalov, Kuybyshev Oblast: "River of Benzene in Paper Banks: Report With Partiality"]

[Text] **The poison that was spilled during a railroad accident has returned to the apartments of many residents of Togliatti with their drinking water.**

The accident that happened at the Zhigulevskoye More Station was one of the ordinary ones. A railroad car rolled down the classification hump and rammed a tank car containing benzene. Seventy-one tons of the poisonous and highly explosive liquid spread alongside of the tracks. All it could take was one dropped cigarette stub or one spark, and a wall of fire 200 meters high could burst into flames over the railroad junction. Thank God, that didn't happen. The firemen quickly covered the benzene lake with foam. The railroad workers dumped onto the flames the mixture of sand and gravel that happened to be at hand.

That happened on Saturday. A report on the accident was given to the local rayon ispolkom. But the sanitation and environmental-protection services did not receive a report on the accident until Monday. It was not until then that people remembered the water-supply intake alongside the station. Readings taken by the sanitation physicians showed that the benzene concentrations in the drinking water exceeded the maximum admissible ones by a factor of 9! The water-supply intake was shut down.

The Safety Rules published by the USSR Ministry of Railroads state, concerning the group of substances that include benzene, "Dangerous when inhaled. Poisonous when swallowed. Possible fatal outcome if inhaled..."

What, then, was the concentration of benzene on the weekend, when the completely unsuspecting housewives were cooking soup and bathing their children? No one can say.

Even as I was preparing this report, I happened to hear for I don't know which time about the partialities shown by "those journalists" for dramatizing absolutely everything. But, actually, no one has ever got hot under the collar or exploded because we are like that. The inhabitants who drank the water containing the benzene did not have to go to the hospital to be treated for poisoning. So is it necessary to inform millions of people?

I am convinced that it is, indeed, necessary. If only because the accident at the Zhigulevskoye More Station is as identical as two drops of benzene to dozens of other accidents on the railroad and on pipelines carrying various products. Seas of spilled petroleum products, and of the very same benzene (this is not the first time it has been spilled in Kuybyshev Oblast) get into the ground water and return to us through the faucets in our kitchens and bathrooms. Who will forecast the remote consequences for the health of the people who have used water with the poisonous admixtures dissolved in it? And, finally, who will answer, and how will they answer, for the pollution of the underground water?

All these questions that were projected onto the accident at Zhigulevskoye More, it would seem, give a general picture of the problems linked with eliminating the consequences of similar accidents. Is it possible today, a month after the accident, to breath a sigh of relief, because everything has passed? In order not to "dramatize" the situation, I would like to quote the findings of hydrologists: "...As of the moment when the benzene was spilled, the ambient temperature was lower than +5 degrees, and that enabled some of this substance to be held in the surface layer of soil in the form of a whitish crystalline mass. Subsequent rises in the ambient temperature, and also the rains, will lead to an increase in the pollution of the underground water..."

The possibility of the migration of the benzene to the Komsomolskiy and Fedorovskiy water intakes is the highest... It is impossible to preclude the probability that the benzene will break through to the Pribrezhnyy water intake. Therefore the benzene will keep the sanitation and epidemiological service in a state of tension for even longer.

It turns out that things have not passed by. It turns out that "these journalists" have by no means been dramatizing the situation.

Where, then, is the way out? Accidents on the railroad and in the product pipelines that involve spills of toxic substances are a sad but real inevitability. One wonders whether any of the individuals potentially guilty of polluting the underground water in the event of such

accidents has ever thought of preventing this. The railroad workers haven't. In the instruction manual governing "the elimination of accident situations with dangerous types of freight, when they are being shipped by rail," recommendations for eliminating accidents with dangerous types of freight are given on almost 300 pages. In the list of the necessary actions, one constantly encounters the instructions "wash with water...," "wash off with a large amount of water..." It is as though the authors are unaware that everything that has been washed off will be absorbed by the soil and will enter the underground water.

The question of how to prevent various toxic substances from penetrating into the ground water in the event of accidents has also left the local firemen in a quandary. "All that we have is water and foam..."

But who is alarmed by this? The departmental interests do not extend farther than the official instructional manuals. It is more complicated to understand the position taken by the environmental-protection, sanitation, and legal-protection agencies. Because who, if not these agencies, is supposed to hold the polluters and ruiners of the environment accountable? But it turns out that their holding of them accountable does not extend, so to speak, deeper than the surface of the earth. Yes, the Kuybyshev Oblast Environmental Protection Committee has sounded a loud alarm and has convoked a board, inviting the guilty individuals and the involved administrative levels. And, finally, it made assignments of who had to do what. But will that decision be carried out? I doubt it. Why? Because the committee itself, essentially speaking, to this very day, does not have any official or legal status. There is no statute, there are no laws to protect the environment in the republic. Moreover, can an oblast-rank committee oppose departments if it is supported by the local budget? So, for a month, the committee workers have been attempting to organize the scientific forecasting of the consequences of the benzene accident. They have been attempting to knock on various doors at plant laboratories, asking them to help analyze the soil at the accident site. They either refuse or impose such an exorbitant price that the committee cannot afford it. They make telephone calls to Moscow. And the people there make promises...

It would appear that the railroad workers have not been refusing to pay the expenses linked with also eliminating the consequences of the accident, but it has turned out that there are no methodologies according to which it would be possible to compute the "underground" damage caused.

And what has the transportation procurator's office undertaken? For more than half a month it has been planning to bring a criminal case to court. But that case has not been brought yet.

But even if the criminal case is indeed brought to court, this does not mean in any way that the guilty individuals will be punished by court procedure. During the past year and a half, out of more than ten cases involving accidents that were transferred to the procurator's office, the court has not yet convened to deal with even one of them...

Deputies Declare Chelyabinsk 'Ecological Disaster'

LD2211093390 Moscow Domestic Service in Russian 0500 GMT 22 Nov 90

[Text] Deputies of the oblast soviet declared Chelyabinsk Oblast a zone of ecological disaster at a session in which the situation in this industrial region was discussed.

A total of 500,000 people are affected by radiation and impetuous growth of oncological illnesses. Thousands of hectares of land and woods are ruined by metallurgical and chemical enterprises. [passage omitted]

Turkmen Government Examines Aral Sea Impact on Tashauz Oblast

91WN0121A Moscow IZVESTIYA in Russian 20 Nov 90 Union Edition p 1

[Article by IZVESTIYA correspondent V. Kuleshov: "Heated Debates in Tashauz"]

[Text] **At its first out-of-town session in Tashauz, the republic's parliament, under the chairmanship of Turkmen President N. Niyazaov, considered the question of the ecological state of the territory along the Aral Sea and the measures to improve it.**

The republic's parliament has not known previously such heated debates as those that accompanied the reports by O. Khodzhakov, chairman of the Tashauz Oblast Soviet of People's Deputies; I. Denisov, USSR minister of health; and A. Tsygankov, deputy chairman of the USSR Council of Ministers Commission for Emergency Situations.

The question in the course of the session was raised point-blank: is there or is there not to be a population in Tashauz Oblast? "If, in the next ten years, no cardinal steps are taken to improve it, the people will have to move out of the oblast." Those words were heard at the session.

The bacterial contamination of the sources of drinking water in Tashauz Oblast exceed all the standards by a factor of more than 10. The chief source—the Amu-Darya, with its formerly tasty water—has been turned essentially into a runoff ditch today. There is just one cause—the hundreds of millions of cubic meters of unpurified runoff and drainage-collection water that is dumped into the river from interrepublic collection systems. And so children and adults are becoming ill. "Recently conducted clinical treatment has revealed that 70 percent of the population in the oblast are suffering

from various ailments. Among them, the hepatitis disease rate is especially high," V. Rashidov, chairman of the Tashauz Oblast Ispolkom, stated at the session.

"Has this question been the object of discussion by the members of the emergency commission even once?" deputy O. Ovezgeldyyev asked A. Tsygankov. "Because what we have here is not simply an emergency situation. What we have here is a crime against humanity, a kind of ecological genocide!"

The Supreme Soviet instructed the Committee on Ecology and the Protection of the Public's Health to modify, with a consideration of the discussion that occurred at the session, the draft of the decree governing the ecological condition of the territories alongside the Aral Sea in the republic and the measures to improve it.

Turkmen Supreme Soviet Members Visit Aral Disaster Zone

PM2311144190 Moscow PRAVDA in Russian 21 Nov 90 Second Edition pp 1-2

[PRAVDA correspondent report: "Expedition to Aral Zone"]

[Text] Turkmen SSR—The entire Turkmen SSR [Soviet Socialist Republic] Supreme Soviet flew to the Aral zone in Tashauz Oblast to discuss in situ problems of ecology and people's health and social protection.

"This is not for the sake of show," Turkmen SSR President S.A. Niyazov, first secretary of the Turkmen Communist Party Central Committee, commented in conversation with me. "We need a purely practical result. Where can we obtain it, if not here, right in the Aral region?"

The situation obtaining in the oblast is truly catastrophic. According to the assessment of an expert commission from the USSR State Committee for Environmental Protection, the population of 800,000 people drink the worst water in the world. On average three members of each family are ill and four in every five women and children suffer from anemia. Bowel disorders have grown by a factor of three in the last five years, and there are three times more cases of tuberculosis in Tashauz Oblast than in the country as a whole. The mind reels at the infant mortality figures...

A more than unprepossessing picture. The causes of this situation, I think, have been precisely defined by the Turkmen SSR Supreme Soviet Committee for Ecology and the Protection of People's Health. Above all, the destruction of the Aral Sea—the area of which has decreased by 34 percent—which is an inexhaustible source of emissions of toxic salts.

A. Tsygankov, deputy chairman of the Council of Ministers Commission for Emergency Situations, who was invited to the session, probably did not feel very comfortable. The deputies veritably inundated him with extremely frank questions. And this was no mere chance. After all, in September 1988 the CPSU Central Committee and the USSR Council of Ministers adopted a resolution "On Measures for Radically Improving the Ecological and Health Environment in the Aral Sea Region, and Raising the Efficiency of Exploitation and Strengthening the Protection of the Land and Water Resources in Its Basin." Now at that time only one-thirtieth of the resources allocated to neighboring oblasts of the Uzbek and Kazakh SSR's were allocated to Tashauz Oblast for the construction of water resources facilities, water supply, drainage and sewerage, and purification installations.

It was not easy for Tsygankov to answer the question why people are receiving sizable pay supplements in the Aral zone of the neighboring republics, while in Tashauz Oblast there were no such supplements. The session took on trust the claim made by the deputy chairman of the USSR Council of Ministers commission that as of 1991 the oblast would receive more than 115 million rubles for ecological needs.

The visiting session of the Turkmen SSR Supreme Soviet drew up an extensive resolution by which the territory of Tashauz Oblast is recognized as an ecological disaster zone. A special regime of economic activity will be established there. The deputies decided to send a delegation to Moscow to submit an appeal to USSR President M.S. Gorbachev. They intend to insist on the financial aid essential for the introduction of pay, benefits, and pension differentials in the Turkmen Aral zone and for the construction of a plant producing pure drinking water.

The Union treaty concept was approved in the main at the visiting session.

Turkmen Supreme Soviet Aral Sea Appeal Sent to Gorbachev

PM2811100990 Moscow IZVESTIYA in Russian 25 Nov 90 Union Edition p 2

[Report by Vladimir Kuleshov: "Appealing For Aid to the USSR President"]

[Text] Ashkhabad—The Turkmen Supreme Soviet has appealed to USSR President M. Gorbachev in connection with the ecologically disastrous situation in Tashauz Oblast.

"The drying out of the Aral Sea," the appeal says, "and the pollution of the Amudarya River with drainage water and effluent from the cotton fields contaminated with toxic chemicals, pesticides, and nitrates, is threatening the survival of tens of thousands of people inhabiting the region..."

What is the republic's Supreme Soviet asking the USSR President to do? To seek funds to construct a drinking water plant in Tashauz and complete work on the Tuya-Muyunskiy water pipeline. There is also an acute

need to establish in Tashauz Oblast and Dargan-Atinskiy Rayon, Chardzhou Oblast, a 60 percent coefficient for the wages of workers, employees, and collective farm members and for the pensions and grants to the population, as is done in, for instance, neighboring republics in the Aral Sea zone.

Uzbekistan, Tajikistan Continue Talks on Aluminum Plant Pollution

Tajik Official Comments

91WN0035A Dushanbe KOMMUNIST TADZHIKISTANA in Russian 29 Aug 90 p 2

[Announcement by A.I. Subbotin, chairman of the Tajik SSR Supreme Soviet Committee for Protecting the Health of the People, Social Security, and Ecology, concerning an appeal by the Supreme Soviet of the Uzbek SSR to the Supreme Soviet of the Tajik SSR]

[Text] Dear people's deputies! Allow me to report very briefly about the ecological situation in the area of action of the Tajik Aluminum Plant. As you know, starting with 1975 this enterprise began work in the Republic. It is one of the giants of the aluminum industry in the country, equipped with the most modern facilities. Its planned capacity exceeds 500,000 tons of aluminum per year.

At the present time the plant employs about 10,000 people. As its capacity snowballs, so are the problems related to releasing in the atmosphere aluminum production waste. Hydrogen fluoride, nitrogen dioxide and sulfur, carbon dioxide, benzopyrene, and other harmful admixtures in high concentrations are polluting the environment. The most worrisome are emissions of fluorine and its compounds. The predominant direction of the wind contributes to the blowing of such harmful admixtures over the territory of Surkhandarya Oblast in the Uzbek SSR.

Studies conducted by institutes of the USSR Academy of Sciences, the Tajik SSR Academy of Sciences, the Uzbek SSR Academy of Sciences, the USSR Ministry of Health, the ministries of health of the Tajik SSR and Uzbek SSR, the gosagroproms of the USSR and the Tajik SSR, and other institutions made it possible clearly to establish a differentiated negative influence of the plant's emissions on the soil cover, vegetation, and water. Particularly affected by the fluorine are the fruit-bearing and coniferous trees, grape leaves, mulberry leaves, pomegranates, and alfalfa. The frequency of chromosome aberrations in animals has been noted, which confirms the real threat to the heredity systems of mammals.

Medical-physiological studies of the health of the population in the area where the Tajik Aluminum Plant is located, in the Tajik and Uzbek SSRs, show a great difference of opinions and claims by scientists, for which reason they must be submitted to expert reviews.

I assume that, given this situation, the plant's leadership acted properly when, in order to establish certain basic standards related to fluorine and other features, it invited an expert group of ESKOS [Ecological Station for Environmental Control] from the nongovernmental Universal Laboratory organization. As Professor Borenboyn, the head of the expert group, promised, by October 1990 it will submit its report. At that point it will be possible to draw specific conclusions and refine plans for improving the ecological situation around the plant.

Currently a "Target Scientific-Technical Program for Reducing the Emission of Pollutants in the Environment to the Maximally Tolerated Levels by the Tajik Aluminum Plant" is being implemented. With a view to reducing the emission of pollutants in the atmosphere by the plant, work has been done to stabilize the technological system of the electrolyzers. The use of fluorine salts per 1 ton of aluminum declined by 29 percent between 1987 and 1989. The automatic elimination of anode effects in eight electrolysis plants has been installed and currently such installations are under way in the remaining plants. Work is being done to update and upgrade the efficiency of the screening of the electrolyzers, the application of an automated system for the supply of alumina, and the centralized supply of alumina and other measures.

The implementation of environmental protection measures at the Tajik aluminum plant made it possible, despite the increased production capacity, to reduce in 1990 the volume of emissions of hydrogen fluoride to 216 tons per year, compared to 1986, when emissions totaled 424 tons.

Steps are being taken to improve the social and sanitary situation in Tursunzadevskiy Rayon, Tajik SSR, and Sariasiyskiy Rayon, Uzbek SSR.

However, today you and I would not have read the emotional appeal addressed by the Uzbek people to the Supreme Soviet of the Tajik SSR had the ecological effect of the plant been normal.

The governments of our republics should submit a proposal on involving the USSR Academy of Medical Sciences in scientific studies to determine the influence of the plant's emissions on the bodies of women, children, and adolescents who live in the zone affected by such emissions. I believe that as of now we should consider mechanisms of compensations for the risk to the population living in this zone.

Uzbek Official Comments

91WN0035B Dushanbe KOMMUNIST TADZHIKISTANA in Russian 29 Aug 90 p 2

[Report by T. Alimov, chairman of the Uzbek SSR State Environmental Protection Committee concerning the appeal of the Uzbek SSR Supreme Soviet to the Tajik SSR Supreme Soviet]

[Text] Dear friends and brothers!

Honored people's deputies of fraternal Tajikistan, dear Kakhor Makhkamovich!

Allow me, above all, to present to you, the people's deputies of Tajikistan, the sincere and warm feelings of respect and fraternal greetings of the people's deputies of Uzbekistan.

The historical destines of our peoples have become so closely interwoven that the lives of the Tajik and Uzbek peoples, similar in terms of culture, language, and customs, are following the virtually same direction. We have common joys and sadness and identical objectives: to make our people happy.

Today, unfortunately, we must speak more not about our achievements but of the problems which are affecting the people ever more strongly, preventing us from living and developing normally.

One such problem on which the attention of the public and the leaders of our republics has been focused in recent years is the critical ecological situation which has developed in the areas surrounding the aluminum plant in Tursunzade.

What happened was that when the plant was being built the idea was that everything will be for the good of the people living here, and for the economic development of Tajikistan. However, in locating and determining the production capacity for aluminum, the designers made a major error by locating the plant regardless of the specific natural-weather conditions of the Gissar Valley.

It must be noted that the population and the environment feel the strongest effect of the emissions of the plant in summer, i.e., during the hottest time of year, when the self-cleaning role of the atmosphere has been reduced to naught, and when there is an accumulation of harmful substances in the active atmospheric stratum.

Although the greatest impact of the plant is in Sariasiyskiy Rayon, its influence is also felt in Denauskiy and Altynsayskiy Rayons.

Let us also note that in previous years the leadership of the former USSR Ministry of Nonferrous Metallurgy and the management of the aluminum plant had underestimated the situation. Efforts had even been made on their part to deny the harmful impact of the plant on the environment and to ascribe all the misfortunes on the influence of pesticides and other factors and social conditions. For the sake of fairness let us note that of late both the plant and the ministry have not been denying the harmful influence of the plant and have taken certain steps to ensure its ecological safety.

Nonetheless, this huge production facility, its technology, and other factors do not allow the plant to reduce the volume of harmful emissions down to the required standards and to normalize the ecological situation. In 1990 atmospheric pollution has remained high.

It was only in 1990, on the insistence of USSR people's deputies and deputies of the Uzbek SSR that this problem was considered by the collegium of the USSR Ministry of Metallurgy (8 February) and discussed on three occasions by the USSR Council of Ministers including deputy chairmen Comrades L.A. Voronin, V.K. Gusev, and V.Kh. Doguzhiyev. On each occasion the ministry and the plant director made promises that they would take steps to normalize the ecological situation. So far, however, they have been unsuccessful in doing so and the ecological situation remains tense.

This once again proves that without limiting the capacity and restructuring some of the installations the plant will be unable to cope with the existing situation and that the harmful impact on the environment and the people will continue.

Naturally, one can understand the ministry's and the plant's leaderships, for this aluminum plant is the pride of the sector. Hundreds of millions of rubles of people's funds have been invested in it and the country needs that metal. We also realize the importance of the plant to the republic's economy. However, we must not at all costs, at the cost of the health of the population and the harm done to the national economy and the environment continue with the production of aluminum!

In addressing themselves to you, the people's deputies of the Uzbek SSR Supreme Soviet have pursued the single objective of achieving through joint efforts a normalizing of the ecological situation concerning the plant, for the sake of the two fraternal peoples living here and creating for them normal survival conditions. We suggest that a joint deputy group be created to determine the future fate of the plant.

By the end of this year, with the help of scientists and specialists, the deputy group could formulate priority and long-term suggestions on restructuring part of the production facility. After discussion by the supreme soviets of our republics, it would be expedient to make these suggestions public.

Along with that, taking into consideration the extremely aggravated ecological and sociopolitical situation in the region, the leadership of the Tajik aluminum plant should implement the stipulations of the 30 November 1989 Union governmental commission, which notes that if the standards of maximal admissible emissions and maximally admissible concentrations are violated, all the necessary steps must be taken including limiting the plant's capacity.

Continuing Controversy Over Tashkent Metro System Contamination

USSR Health Official Comments

91WN0039A Moscow SOYUZ in Russian No 36, Sep 90 p 22

[Interview with USSR Deputy Health Minister Aleksandr Kondrusev by Irina Krasnopolskaya:

"Uzbekistan—The Capital Metro: No Sensation Occurred, but the Danger Remains"]

[Text] **On 28 August, the "Vremya" program on television carried a sensational report from Tashkent that certain kinds of microorganisms and microbes supposedly had been found in the city's metro, which are destroying the structure and poisoning people.**

Moreover, Professor N. Dekhkan-Khodzhayeva announced that this microorganism—patilomicos variole—is more dangerous than AIDS. Well, and if you consider that AIDS has the reputation of being the plague of the 20th Century, then—this microorganism is even more of a sensation. A sensation that alarmed all who heard the report on television, one which became instantly known practically to everyone. And what was the situation in fact? Is patilomicos variole really more terrible than AIDS? With these questions, I went to the USSR Ministry of Health, to see Deputy Minister and Chief State Sanitary Physician of the USSR Aleksandr Kondrusev.

[Kondrusev] In fact, there was no basis for the sensational statements. And before moving on to the heart of the matter, I consider it necessary to say: We sometimes are misusing glasnost and, in a period that is so complex in our country from all points of view, especially in the republics, without thinking about the possible consequences, are rushing to make sensational statements. To stagger? To astound? To cause panic? Indeed, time is then needed in order to show that there are no grounds for the sensation. This, unfortunately, is what happened this time.

[Krasnopolskaya] But what, in fact, is happening? Are the employees of the Tashkent Metro really becoming sick?

[Kondrusev] On 28 August, that is, the day after the report on the "Vremya" show, a discussion took place in the Uzbek Ministry of Health. It was established that the microorganism patilomicos variole exists within our surrounding environment and not infrequently infects people who have no connection with work at the Chkalovskaya and Tashselmash Metro Stations in Tashkent. Of the 33 workers who have applied for medical assistance, this microorganism was detected only in four. There is no proof for the allegation of contamination by this organism and it is not confirmed by clinical phenomena based on contamination by chemical substances. There is no basis for the presence of a "biological reactor", as the author of the "Vremya" interview program believes. The Chkalovskaya and Tashselmash Stations are now closed.

[Krasnopolskaya] But this means there are harmful influences?

[Kondrusev] And indeed there are! Specialists have long been sounding the alarm concerning the situation at these stations. Indeed, back in 1988, train engineers complained about the appearance of unusual odors in the air of the metro, about feeling worse during working hours, about headaches, dizziness, sluggishness, nausea, dryness and a tickling in the throat, and so on. Those to whom they turned diagnosed serious poisoning.

The stations we are talking about have been a source of serious concern from when they were first opened in 1987. Back in December 1987, a special commission was organized at the request of the directors of the Tashkent Metro System. It came to the conclusion that the main reason for the appearance of toxic materials in the tunnels was untreated industrial drainage from the Tashkent Aviation Production Association imeni Chkalov (TAPOiCh). This plant was built more than 50 years ago. Treatment facilities are practically nonexistent at it. And indeed, there are electro-plating and anodic painting shops there. Reservoirs have been dug into the ground here containing solvents, fuel and lubrication materials, acids, and alkalis. Untreated waste waters are dumped into a channelized collector that runs by the Chkalovskaya Station with a discharge water volume that is two- to three-fold greater than that permitted in the city's sewer system. The technical condition of the collector is beneath any criticism. In addition, fluids are leaking out of the in-ground reservoirs. Chromium-plating, hydro-ammonia cadmiumization, cyanic cadmiumization, nickel-plating, anodization, and chemical oxidation processes are being carried out in the electroplating and anodic painting shops at the TAPOiCh.

[Krasnopolskaya] And as a result?

[Kondrusev] In April 1989, the sanitary and epidemiology center issued a decree on "halting the operation of the Chkalovskaya Station." The materials were transmitted to the transportation procuracy. The question was also discussed in the Uzbek Ministry of Health. Medical workers demanded a fundamental improvement in the ecological situation. However, as happens with us quite often, there has been no hurry to carry out these instructions. Therefore, from April to September 1989, more than 400 persons were registered as having reported to metro health points with one and the same complaint—weakness, dizziness, nausea, and the like.

The Tashkent Metro System improved the ventilation system, cleaned out drainage gutters, reduced the working time of personnel at the station, and acquired individual protective equipment. The sanitary and epidemiology station began to take regular samples of the air and of drainage waters. But all these were halfway measures. Therefore, the medical and sanitary service again posed the question of closing the Chkalovskaya Station. In the beginning of September, city authorities decided to close the section of the line between the Tashselmash and the Chkalovskaya Stations. The plant did something to improve the ecological situation. In short, in November they again opened the section of the road for train traffic. From November 1989 to January of this year, everything was more or less calm. The situation got worse in February, when the heavy snows and rains began. These waters, travelling through earth

that has been seriously contaminated by technical substances over many years, began to penetrate the tunnels in many places and, along with them, to bring harmful substances into the metro environment. And again there were instances of poisoning...

Judge for yourself. Analysis of air quality test results at the Chkalovskaya Station has showed that maximum one-time allowable concentrations have been exceeded 1.68-fold for hydrogen chloride, 2.3-fold for ammonia, 3.8-fold for nitrogen dioxide, and 3.3-fold for phenol. And there have been days when permissible concentrations of hydrogen sulfide have been exceeded by 10- to 15-fold...

Each such excess is sufficient to cause serious poisoning of the organism. What is also striking is human endurance. From the very beginning—from the planning of construction of stations in such close proximity to the TAPOiCh—it has been obvious that people are being condemned to work under unacceptable conditions, that they will be doomed to illness.

And now it is necessary either to implement a very serious complex of measures to protect people or to close the stations. I understand that either one or the other of these will cost the state an enormous amount. But the health, the lives of people are even dearer. It is necessary to choose.

Officials Debate Cause

91WN0039B Moscow KOMSOMOLSKAYA PRAVDA in Russian 5 Sep 90 p 4

[Article by M. Alimov and V. Volodin: "A Sarcophagus Over the Metro"]

Text **Picket lines of alarmed residents of nearby microrayons have once again appeared next to the Chkalovskaya Metro Station in Tashkent, which was closed a year ago by the sanitary service.**

Medical workers noticed that something wrong was happening in the atmosphere of the station tunnels in the early spring of 1989, when heavy downpours of rain occurred: Engineers on the trains and attendants at the stations began to suffer from headaches, sleepiness, running eyes, nausea. Six engineers were hospitalized.

During study at the toxicology center, a 6- to 8-fold increase in the level of carbon monoxide was found in the blood of many. But (and this was the puzzle), no deviations from the norm were found in the air of the tunnels. It was only in the course of careful studies that they discovered high concentrations of hexavalent chrome, methane, hexane, propane... And their combination with the nitric oxides and hydrogen sulfide found in the atmosphere of the metro was producing a toxic effect. But how did the harmful gasses get into the tunnel? The answer was already being sought by a governmental commission.

Studies showed that, at a great depth, a sea of all possible kinds of petroleum products "splashes" alongside the Chkalovskaya Station. Indeed, not far from the metro lines there is an aviation plant storage site for fuel and lubrication materials and acids, the cisterns of which have been noticeably leaking for many years. Moreover, the storage site did not have treatment facilities or a waste drainage system. And these began to pour out and harmful leaks through the joints of the concrete tunnel began to penetrate the metro, to break down, and to form toxic mixtures of gasses.

It is naive to say that the planners and builders of the metro did not know about the contamination of the soil around the new station. The workers who put up the Chkalovskaya Station told correspondents how the soil here burst into flame from carelessly discarded matches. And no significance was given to this.

In order to rid the station of the gasses, three bore holes were drilled on the grounds of the aviation plant, through which pumps began to pump out the ground waters containing petroleum products. The fuel and lubrication materials and acid storage sites were removed. But spring came, heavy rains began again, and the situation was repeated. In the beginning of April of this year, the Chkalovskaya Station and its neighbor, the Selmashskaya Station, were closed by the line's sanitary service. The effected stations were fenced off from the remaining ones by a solid brick wall.

It would have been possible to put an end to the matter here, but... How can you brush aside the interview given to a Central Television correspondent by the director of the department of protozoic illnesses at the Uzbek SSR Ministry of Health's Medical Parasitology Scientific Research Institute imeni L. M. Isayev, Professor N. A. Dekhkan-Khodzhayeva, and by A. Stepanichenko, a scientist from Tashkent University? They declared for all to hear that a bioreactor is in operation beneath the Chkalovskaya Station, the microbes of which are destroying the structure of the station and are giving birth to microorganisms which are "worse than AIDS." "I have expressed my point of view and am prepared to defend it everywhere," said Professor N. A. Dekhkan-Khodzhayeva. "I am convinced that microorganisms that we call zavminella' exist at the Chkalovskaya Metro Station, which we have detected in the blood of three out of the 32 sick people who have turned to us. I will not go into a detailed description of it, but will stress that the main danger of the microorganism lies in the fact that it penetrates and affects literally all organs and tissues and that, according to our data not only affects erythrocytes, leucocytes, monocytes, and lymphocytes, but also multiplies within them."

And here is the opinion of the chief of the Tashkent Metro, A. D. Mirdzhalilov:

"At the present time, intensive work is being carried out to localize the situation at the Chkalovskaya Station. Two hundred thousand rubles have been allocated for

insulating the joints in the tunnel, specialists from the Gidrospetsstroy trust are building a sarcophagus over us so that water does not penetrate inside. We are removing contaminated soil. Work is being held up by the fact that the aviation plant is dragging out construction of treatment installations. A contract has been signed with the Scientific Research Institute for Microbiology of the Ukrainian SSR Academy of Sciences concerning the carrying out of research operations. Its specialists have detected various kinds of microorganisms in the atmosphere of the tunnels; however these are not dangerous to health. In her interview on television Professor Dekhkan-Khodzhayeva said that a bioreactor of some kind is destroying the structure of the metro. This is incorrect. According to the conclusions of a tunnel study commission from the Ministry of Railways, there have been no basic changes in the quality of construction."

Who is right and who is not, time will of course tell. But do we have the right today to waste this time on ambitious and empty arguments? Perhaps it would be wiser for all of us to join together and, most importantly, without mistakes, to solve all the secrets of the "ailment" of the two stations of the Tashkent Metro?

Situation Detailed

91WN0039C Tashkent KOMSOMOLETS UZBEKISTANA in Russian 12 Sep 90 p 1

[Article by Andrey Semerkin: "The Chkalovskaya Station: No Passengers Are Getting On"]

[Text] "Don't be frightened, for God's sake, don't be frightened!"—these words of Hermann, from Pushkin's story, "The Queen of Spades" have been repeated for the last two weeks by ecologists, workers on the Tashkent Metro, journalists... After the "Vremya" television show presented a program on the state of affairs at the Chkalovskaya Station, telephones in organizations that have a direct or indirect relationship to the metro have not stopped ringing. Passengers, specialists, and journalists are calling, and all are demanding a precise answer: What is happening at Chkalovskaya?

And at Chkalovskaya all is normal. You do not believe it? But it really is. A paradox.

Our paper has more than once turned to this underground theme. We have openly informed our readers about everything that we knew ourselves. Let us briefly recall the course of events.

More than a year ago, the composition of the air in the metro tunnel in the vicinity of the Chkalovskaya and Tashselmash Stations changed sharply. Instances of poisoning of train engineers and station workers were noted. A search for the sources of contamination was begun. The shadow of suspicion fell on all enterprises located in the vicinity of the Chkalovskaya and Tashselmash Stations, including the Tashkent Freight Station. A commission established to study the situation carefully examined all versions.

It was established that the gasses which had poisoned the engineers are formed by microorganisms. However, it was unclear what is nourishing the bacteria which inhabit the area in the space outside the metro tunnel. It is fully possible that the fuel and lubricating materials storage area of the Tashkent Aviation Production Association imeni Chkalov (TAPOiCh) is supplying nourishment for the bacteria. Petroleum products are an entirely edible thing for bacteria, but it is not only a matter of petroleum.

At one time (many years ago), there was a small lake where the storage site is located. Old-time residents even say that fish were raised in it. Then they drained the lake and built the storage dump, and later also the station. If it were known what they used to fill the lake many years ago, it would be clear what is nourishing the bacteria. But the dead lake is silent.

There is still one more "hydro-puzzle." The nearest neighbor of the Chkalovskaya Station is the small Karasu River. Why does the river bear specifically this name (Black Water)? There is the story that the ground waters in the vicinity of the Karasu even before construction of the metro contained some kind of mixture of compounds. This could also have an influence on the color of the water, and on the name of the river. At the present time, black water appears in test shafts dug above the station. Where does it come from? What does it consist of?

Let us examine who is "feeding" the bacteria: Is the filled-in lake "sending a greeting" from the world of nonexistence, or is the dump sharing its excess petroleum products, or is it the stream trying to justify its black name?

While the commission considered, the bacteria were living out their own full lives. From the side, this looked like the games of an evil spirit. In February of this year, the temperature of the ground waters in the region of the Chkalovskaya Station suddenly rose to 57 degrees. And, at another time, the appearance of hydrogen was established in the water of a number of the bore holes—this coincided with underground tremors. However, specialists consider that bacteria are hardly capable of such "feats." Both surprises must have another, nonbacteriological nature.

Who knows how events would have developed if the Chkalovskaya Station had been built at another point. But a fact remains a fact: The station is located in its ill-fated location, and this was not managed without the participation of the administrative system. In its time, the leadership of the aviation association succeeded in getting the station built specifically at the entrance of the TAPOiCh. With this goal, they say, visits were made to the very highest offices in the republic and the union. It is known that such visits end with the most august instructions: how to build and where.

The history of our fatherland contains examples of when the mighty of this world have participated in the construction of railroads. In particular, the Petersburg-Moscow Railroad in its time was laid following the tsar's route. The line, "selected" by the monarch, was weak from a technical point of view, but one did not argue with the tsar. Historical experience teaches us nothing and they put the Chkalovskaya Station where directed—right on a stone pillow. They located it such that practically the flow of underground waters cannot pass either under or alongside the station but beats directly against the side of the underground station.

The tunnel, however, is dry—the bore holes to lower the water are working. They were at the station; they went down onto the line, prepared to pray: it is dry. Although the commission did not pronounce a final technical diagnosis, certain measures were taken. As the deputy chairman of the republic's State Committee for Environmental Protection, Vladimir Konyukhov, explained, irrespective of what the microorganisms are feeding on, the recommendations of the commission were carried out: they cleaned up the dump, the level of the ground waters was lowered. The result is that the situation has been normalized at Chkalovskaya and in its neighborhood. Today, there are no deviations from the norm in air quality but, as formerly, there are petroleum products in the water that is being pumped out of the wells.

Why then aren't the trains running? The commission is working on its final technical diagnosis. In this, it is being helped by specialists from the Krasnokholmskgeologiya and the Uzbekgidrogeologiya Aassociations, scientists from Kiev (about 20 years ago there were bacteria in the Kiev Metro that devoured... cast iron. The Kiev bacteria won out and have moved on to Tashkent to share their experience), chemists from Tashkent University, metro workers... Until a precise diagnosis is made, the metro will not operate on this section,

...The Chkalovskaya Station. A platform without people. Footsteps in the silence. Abdusattar Makhkamov, the chief of the station. The station custodian. Or a stalker of the underworld? Every day he comes to a station where there is not a single passenger.

Not a sound is heard from the tunnel that leads off into the darkness. This section of the metro is cut off from the rest of then Tashkent underground world by a brick wall. It was built between the Tashkent and the Tashselmash Stations at the decision of the commission so that the gasses from Chkalovskaya and Tashselmash will not spread along the underground line. Now there are no gasses, but the wall continues to stand.

Our suggestion is that, when the wall is taken down (and such a time, of course, will come), the bricks not be chucked out. Let's send the fragments of the underground wall to those cities where they are getting ready to build metros. Let them learn there about the sad experience of Tashkent and never build a line either alongside dead lakes, above dumps that contain petroleum products, or near streams that have a dubious reputation. And, moreover, let them not listen to most august personages who are inclined toward instructions about railroads.

We hope that the Tashkent Metro will present one brick to our editors as well—as a reward for honest, objective illumination of the underground events. But it is not necessary to send souvenirs to the republic Ministry of Health: They do not deserve them. The commission for investigating the events at Chkalovskaya Station appealed more than once to the Uzbek Ministry of Health with the request that it take part in this work, but did not find understanding. The Ministry of Health gives the appearance that underground affairs do not interest it very much and shifts all cares over to the railroad sanitary and epidemiology station.

"However the sanitary and epidemiology station is simply not a scientific research institution. The medical personnel of the station are doing everything that they can to study the medical aspects of the problem, but their efforts are small," considers Vladimir Konyukhov. "If medical scientists would carefully study the metro engineers who have become ill, then a precise medical diagnosis would help establish a precise technical diagnosis. And from a moral standpoint, it would be correct if the Ministry of Health would show special attention to those who have damaged their health at their place of work. Up until now, participation by the Ministry of Health in solving the problem has clearly been insufficient,"

The editors of KOMSOMOLETS UZBEKISTAN officially appeal to the republic Ministry of Health: Several thousand of our readers live and work in Khamzinskiy Rayon in Tashkent, in the region of the Chkalovskaya and Tashselmash Stations. Protecting their interests, and also the interests of the workers of the metro, we ask the Ministry to turn the most serious attention to study of the medical aspects of this ecological problem. People are waiting for help.

Thorough medical study is necessary: The "Vremya" television program also talks about this. True, the version given by "Vremya", from the point of view of the commission, is only one of the hypotheses.

"The commission has already labored for a long time and makes no secret of its work," says Vladimir Konyukhov. "But it is necessary to understand one point correctly here. Various, sometimes the most unexpected working hypotheses, are expressed at sessions of the commission. And the attitude toward them should be precisely that toward working hypotheses, which must be careful verified, and then either accepted or rejected. Unfortunately, occasions occur when some member of the commission tries to present his own working hypothesis as a final conclusion of the commission. In this way, an incorrect view of the situation can develop, about its

evaluation... We ask journalists who are covering this subject not to confuse hypotheses and conclusions."

In fact, conclusions are still in the future. And although the situation at the Chkalovskaya Station, I stress, is normal, we are not in favor of opening the line until we are convinced of its total ecological safety. The commission is continuing its work. There is no basis for panic.

Second Commission Begins Study

91WN0039D Moscow TRUD in Russian 4 Oct 90 p 1

[Article by Yu. Kazachenko: "The Secret of the Chkalovskaya Station"

[Text] **A special commission of the Uzbek SSR Ministry of Health has begun its work. It is operating in parallel with a state commission that has already spent about a year studying the phenomenon of the Chkalovskaya Station, which had to be closed in November of last year due to massive poisoning of metro workers and passengers.**

"We decided to start from zero and take our own path," said the chief physician of the republic sanitary and epidemiology station, "but we do not reject contact with the state commission. Thus, today we can accept with all certainty its conclusion that the poisoning occurred not from a secret microorganism, but from a complex of toxic substances through the respiratory organs. Scientists from Tashkent, the Kiev Scientific Research Institute for Microbiology and Virology, the Ministry of Railroads' Moscow Scientific Research Institute for Railroad Hygiene, and other specialists working today on solving the puzzle of the Chkalovskaya Station, have agreed to provide us with their data.

At the moment, the station and the tunnels leading to it have been reliably sealed off. Work on hermetically closing off dangerous sections is going on. The future will tell whether a "Chkalovskaya concrete sarcophagus" is needed.

Commission Investigates Biysk Oleum Plant Blast

PM1411171190 Moscow IZVESTIYA in Russian 15 Nov 90 Union Edition p 3

[Own Correspodent M. Kurgalina dispatch: "Explosion at Plant"]

[Text] Barnaul—At 1500 on 13 November an explosion occurred in one of the shops of an oleum plant in Biysk. A four-story building was totally destroyed. It has been provisionally established that there were 25 casualties: nine died, and seven were hospitalized (of which two are in grave condition). The reason for the explosion and the scale of the material damage are being ascertained. A qualified commission from Moscow is at work at the scene of the incident.

More on Explosion at Biysk Classified Defense Plant

PM1411204190 Moscow RABOCHAYA TRIBUNA in Russian 15 Nov 90 p 4

[Report by A. Nadzharov and A. Parshintsev: "Explosion at Military Plant"]

[Text] At 1110 hours on 13 November the city of Biysk was shaken by a mighty explosion—there had been an accident in a shop at the defense plant there. So far the bodies of 10 dead workers have been recovered. Another two workers are now in intensive care.

Journalists have been unable to ascertain any details of the tragedy. L. Khvostenko, a correspondent from the local newspaper BIYSKIY RABOCHIY, who was at the scene of the event immediately after the explosion, has described how not only journalists cannot enter the site of the classified plant—even KGB and militia workers cannot get in, so highly classified is it. But she and some local leaders managed to get in and when she was discovered she was severely warned not to report any details of what she had seen.

This is not the first accident at Biysk's armament enterprises. And on each occasion this monster has claimed seven to eight lives. Plus those who have died prematurely from the various illnesses contracted at military plants.

Hitherto the information on this has rarely been made public. Today, however, everything is different. Unlike the enterprise's workers, the USSR KGB Public Relations Center has given the editorial office all the information at its disposal. That information shows that the explosion happened in the No. 8 Shop, which produces industrial explosive. A machine which blends the constituents of the explosive broke down. As prescribed in such instances, a fitter was called to the scene of the breakdown. The tragedy occurred a few minutes after he began the repair, possibly as a result of a violation of the safety procedure recommended for such work.

According to preliminary estimates, the loss due to the accident is approximately 100,000 rubles. The human losses are far more terrifying. They were mainly young women, born between 1959 and 1967. Six of them had children.

A government commission headed by O. Zabelinyy, USSR deputy defense industry minister, has arrived in Biysk. B. Yeltsin and I. Silayev have sent a telegram expressing condolences to the family and friends of the deceased.

More Details of Biysk Oleum Plant Blast Emerge

PM1611110190 Moscow KOMSOMOLSKAYA PRAVDA in Russian 16 Nov 90 p 1

[S. Kuzmin report: "Explosion at Explosives Plant"]

[Text] Biysk, Altay Kray—The explosion at the oleum plant disturbed all of Biysk. Especially since it is no secret even to small children in the city—oversaturated with "hazardous" enterprises—that the oleum plant is a "defense plant." And now the shop producing explosives has "gone up." Passions were further roused by the municipal emergency commission, which categorically refused to report the details of the tragedy.

It was only after explanations given by the chairman of the government commission that the true scale of the tragedy began to emerge: 11 workers, nine of them women, died and several people sustained serious injuries. Another victim has not been extricated from the wreckage. No one has yet calculated the material damage, but it will run to hundreds of thousands of rubles at least.

The reasons for the explosion are still unclear. Despite the fact that the workshop was in fact producing industrial explosives, mainly for mining work, they are not dangerous per se. Specialists have given assurances that nothing would happen even were this explosive to be hit or broken to pieces with a hammer. It is only when the temperature exceeds 200 degrees...

The government commission states: "Saboteurs and flying saucers have nothing to do this. There was most likely a breach of technology somewhere. A chemical reaction may have begun in one of the units. Then the temperature rose."

Experts from the State Committee for Environmental Protection have made a most gratifying report: The accident will not have a harmful effect on the environmental situation in the city. I think that they are right, the situation in Biysk simply cannot be made worse now. The people of Biysk have resigned themselves to the fact that their native industrial giants not only feed and clothe them and harm their children's health, but also, it transpires, effectively hold them hostage.

Rail Crash Threatens Pollution of Lake Baykal

LD1911235990 Moscow Television Service in Russian 2140 GMT 19 Nov 90

[From the "Television News Service" program]

[Text] [Announcer] A railway catastrophe has happened in Siberia next to Lake Baykal. As a result of it many chemical substances fell from rail cars. They could poison the lake and kill all living things in its waters. A report by our correspondent:

[Correspondent] The railway workers of the Ulan-Ude line gathered up the fabrics, candies, dried milk, and other products, quickly. But of course they had to successfully clear away another freight item—more than 600 tonnes of mineral fertilizer which, with subsoil waters, could get into the Baykal. The partly melted snow began to dissolve the ammonia saltpeter which the railway workers had not touched for more than 10 days. Deputies of local soviets and scientists of the Institute of Toxology at Lake Baykal sounded the alarm: The chemicals could turn the coastal shallows here into a dead zone. Such a leisurely manner would cost Baykal dearly, and the delay cost transportation workers considerable expenditure. The upper layer of the soil had to be removed from a large area. Has Baykal been saved? [video shows freight train; snow-covered land next to rail track; women taking samples of snow and topsoil; freight wagons; rail track]

Handling of Lake Baykal Rail Accident Criticized

PM2111111590 Moscow Television Service in Russian 1530 GMT 17 Nov 90

[From the "Vremya" newscast: Report by Yu. Nikolayev and Yu. Svechinov, identified by caption]

[Text] [Newscaster] There has been a rail crash on the Trans-Siberian Railroad 300 km from Ulan-Ude.

[Reporter] [Video shows crash scene] The crash happened on the night of 19 October at the remote station of Kedrovoye [as heard]. Owing to a cracked pair of wheels 23 cars carrying various goods were derailed. Fortunately, nobody was injured. We might have heaved a sigh of relief, but it had all happened just a few hundred meters from the shores of Lake Baykal, and 10 of the cars that rolled down the embankment contained ammonium nitrate and phosphate fertilizer. The railway workers set about removing the soil surface and clearing the ground as far as possible of these fertilizers that are undoubtedly harmful to ground water and the Baykal water system.

[P.N. Matveyev, deputy chairman of the Buryat Republic Nature Conservancy Committee, identified by caption] The workers from the State Committee for Environmental Protection have taken water samples from Lake Baykal, from the river, from wells, and from ground water sources. So far we can say that the mineral fertilizers have had no effect on Lake Baykal.

[Reporter] Tell me, could there be any consequences when the soil thaws out in the spring?

[Matveyev] Well, in order to monitor matters, we have to keep things under constant observation. Samples of the water in Lake Baykal and the [word indistinct] will be periodically taken.

[Reporter] Tell me, this all happened back on 19 October. Yet until now neither the public nor the journalists in the republic knew anything about it for some reason. How could this have happened?

[Matveyev] After we received the report about the rail crash we informed Moscow, the RSFSR [Russian Soviet Federated Socialist Republic] and USSR State Committees for Environmental Protection, and the Buryat ASSR

[Autonomous Soviet Socialist Republic] Council of Ministers. We drew up a plan on the basis of the information received, passed on the information, and we have been working to that plan.

[Reporter] And journalists are not being allowed into the area.

[Matveyev] Not yet.

[Reporter] [Video shows shots of lakeside, railroad] Yes, why get the public concerned? There is a long winter ahead. And in the spring we will see if things are OK. But what if they are not? What if there is an unexpected thaw. And what if by the springtime everything is still in the soil and gets washed into Lake Baykal? It strikes us that it is inappropriate to be complacent in this case, still less to just wait for the spring.

Submarine Nuclear Waste Disposal Near Vladivostok Evokes Concern

91WN0045C Moscow TRUD in Russian 17 Oct 90 p 1

[Article from Vladivostok by V. Onishchenko: "Secrets Are Revealed"]

[Text] **For four years, the documents about an accident on one of our nuclear submarines near the coastal settlement Shkotovo-22 were kept secret. Now it has become known that the radioactive waste was buried nearby, in a poorly prepared burial ground.**

Members of the Maritime Kray's civil defense staff, having reviewed secret Navy files, have determined that up to 2,500 cubic meters of radioactive contaminants are in the earthen repository. Many think that contact of these with groundwater is not ruled out.

V. Danilyan, chief of the Pacific Fleet Chemical Service, reported, at an open session of the ecological commission, that the gamma-ray background and beta-radiation levels do not exceed the norm within the Shkotovo settlement's confines. "Relocation of the waste, on which the settlement's residents are insisting out of their ignorance," Danilyan stressed, "may significantly worsen the radiation situation."

One gets the impression that military people have their own outlook on the environment and the measure of responsibility for its condition. Ship graveyards in once thriving bays and the sea's pollution with oil products are routine facts of the Navy's activity.

DENMARK

Danish Research Center Reorganizes, Focuses on Environment

90WS0076X Copenhagen BERLINGSKE TIDENDE in Danish 23 Jul 90 pp 6-7

[Article by Jens J. Kjergaard: "Riso Trimmed To Meet Demands of the Nineties"]

[Excerpt] Riso Research Center is on a diet. The institution is to be slimmed down and strengthened, so that it can hold up better in the super-tough international competition. In the future its strength will be gathered around eight application fields, which will hopefully live up to the expectations. And strategic alliances that are also beneficial to Danish business will be established. A new division of labor is on its way for research.

But the conversion process is by no means painless. Eighty-five employees have received notice that they are to be laid off. The first employees will leave Riso in the fall, the last ones say goodbye in 1992. The cutbacks are deepest in the administrative functions, particularly in the areas which are not in as much demand as before by the research departments. The marketing office will disappear. The management is convinced that the reductions are a necessary precondition for a positive development at Riso.

Order in the Economy

Now there must be order in the economy so that the overall level of activity can be maintained, wrote director Hans Bjerrum Moller in the July issue of the personnel newsletter. Additional demands for cutbacks may be issued. The management has not received any guarantees.

The leadership of the country's major sector research institution warns that a continued reduction in budget appropriations will constitute such a serious drain on the established stock of knowledge that the quality or relevance of the research cannot be maintained in the long run.

This year, Riso will earn only 140 million kroner from contracts, while 230 million will come directly from the public coffers, meaning 38 percent is activity that pays for itself. The Riso Research Center will therefore continue to have a considerable range, but the scarce funds will cause efforts to be concentrated to fewer projects. The 1990 reorganization will give the center a profile, so it will be clear for what we stand and how we can serve. Research institutions must adapt to a changing community.

Strategic Research

Riso is in the middle of the spectrum between basic research and development work. The emphasis is on what is called strategic reseach—meaning gathering knowledge and experience, which in the intermediate term makes it possible to solve concrete tasks.

"In some way it worries me that 40 percent of our total activity is financed by contracts," says Jorgen Kjems, research director and head of the new Environmental Department.

"The contracts with the EC help guide our own research. Every time we sign a contract our hands are tied, so it must be understood that we must add to it from our own meager funds.

"We are happy about our tasks for Danish activities, but—with all due respect for Danish commerce—industrial people are particularly interested in problem solving in a very short time, that is to say within a horizon of two to three years. We would very much like to have that kind of projects, but those are not the ones that create renewal in the form of new technologies.

"The renewal may grow from research that to a large extent is open. As open as it is possible when the imagination is to play within eight application areas. For example, ideas may be based on using the DR3 reactor, a useful research tool which may also interest foreign researchers.

"We can only raise our level of knowledge by associating with the best in the world, by taking to conferences with things others can use, and ourselves gathering ideas from other fields. This will not succeed if Danish researchers and business people confine themselves within closed circles."

New Knowledge Center

At Riso there is excitement over the new neighborly relations with Denmark's Environmental Studies.

This creates a center of knowledge which could be of major importance to research and industry, and in the long term will open up even greater prospects if the European Environmental Agency moves here.

The establishment last year of the Center for Advanced Technology was a step on the way toward increased cooperation between industry and research. The intent is for interesting activities combined with researchers at Roskilde University, Denmark's Environmental Studies and Riso to bring ideas to the point where actual production may be initiated.

The authorities behind the new public research programs, both Danish and joint European, stress the participation of industry to an increasing extent, and that is something we can only be satisfied with, the Riso management points out. In particular, the center has major expectations for the cooperation between power plants and industry regarding the development of fuel cells. A project which was begun in 1989 under the EFP, that is to say the Energy Research Programs.

In 1989 Riso entered a strategic alliance with DK-Teknik on combustion research, and the center hopes to establish corresponding agreements with other institutions and activities.

Riso is among those who were part of the MODECS initiative, a forum where institutions and private activities design and test molecules for the medical and environmental fields.

Windmills Have Become High Technology

"Denmark is actually cleaner now than when I was a boy—in a land area with dung hills, open sewers and swarms of flies. The creeks may have been in better condition, but the villages were not," says research director Jorgen Kjems.

"Riso will concentrate to an even greater degree than before on development of environmental technology, because the environmental crisis can only be solved with technology," the director adds.

He is looking forward to future close cooperation with Denmark's Environmental Studies (DMu), which is just about to move to the research center, but he stresses that Riso wants a different profile than DMu.

"Our main task is not to identify the problems. We have a tradition of large experimental projectes and want to create the background for the engineering solutions which can reconcile us with nature. It is very satisfying to be a part of developing new technology which does not come about solely for profit."

Offer to the East

Riso's researchers have a lot to offer in the cooperation with the new Eastern Europe, not least in the field of atmospheric chemistry. The Baltic countries, Poland and the GDR are particularly interested in careful study of the ways of pollution, which means, among other things, controlled emissions of a harmless but easily recognizable trace material such as SF_6, sulfur hexafluoride.

Plans are also being made for continuing the work on the large wind atlas for the western regions.

"Windmills are a useful contribution to the energy supply; in this field Denmark is in the forefront, and we don't voluntarily want to give up our leader's shirt. We are arriving at better, smoother materials and the wings are designed with the aid of computers, so that they can get a maximum efficiency without breaking. It's a matter of renewal, and today wind mills may be described as high technology, just as demanding as the development of aircraft, for example," says Jorgen Kjems.

Riso Washes Toxic Earth Completely Clean

If the Environmental Administration is to be believed, there are about 80 million tons of polluted soil in depots around Denmark. And one-tenth of this stored dirt is so toxic that it is necessary to purify it. But how? The Riso Research Center has the answer.

As a spin-off from a study that was to show whether it might pay to wash out Greenland uranium, methods were found which guarantee that substances that are hard to break down are rendered harmless and eliminated. The process is called wet combustion or wet oxidation.

In 1988 Riso, in cooperation with NKT A/S began the development of the highly effective cleansing process, which in principle can keep going without adding outside heat. This has now progressed almost to the point where the research center is allowing itself to be detached and cash in the licensing money.

The organic material in the sludge itself delivers the energy for the breakdown, which takes place at 280 degrees and under high pressure.

The first attempt at purifying tar-containing soil was undertaken in 2-liter autoclaves, but in the next experiments the researchers were able to treat 3 cubic meters an hour.

A winding, kilometer-long, pipe system was constructed at Riso.

Similar installations can be placed elsewhere in Denmark—or on a ship.

First, pieces of metal and plastic are separated out. Next, rock is sorted out in a washing drum. What remains is fine clay with all the toxic substances which can be destroyed in wet combustion.

The pipes emit water, carbon dioxide—and formic acid, butyric acid and acetic acid, which can be broken down biologically by the starved bacteria in an ordinary purification plant.

"Riso would like to join projects which develop new technologies in cooperation with industry. But we are only part of the pre-competitive phase. The actual production we let others handle. This yields the licensing money; the negotiations about these conditions can be tough, but normally we are satisfied with the agreements we conclude," says research director Jorgen Kjems.

Riso's Eight New Departments:

- Combustion Research
- Meteorology and Wind Energy
- Systems Analysis
- Environmental Research
- Nuclear Safety Research
- Materials Research
- Solid State Physics
- Optics and Fluid Dynamics

GERMANY

U.S. Army Accused of Contaminating Soil, Water

91WN0104A Berlin TAGESZEITUNG in German 13 Oct 90 p 6

[Article by Joachim Weidemann: "Things Are Getting Hot for the U.S. Army: Egregious Violations in Perchlorethylene Storage—Insufficient Safeguards for Groundwater"]

[Text] Mainz—At European U.S. military depots—above all in Kaiserslautern and Germersheim—perchlorethylene (PER), which is used as a cleaning agent, threatens to pollute the ground and water. The reason: Up to now, the U.S. forces have been violating all U.S. and German regulations for PER storage. They exceeded the permissible upper limit for storage capacity and allowed PER canisters to decay. This is evident from the most recent report by the General Accounting Office in Washington (April 1990). This report was presented by the Greens in Rhineland-Palatinate yesterday.

Gernot Rotter, a Mainz Greens delegate and a disarmament expert, demanded an immediate investigation by the public prosecutor's office "in view of these violations of the supplementary agreement to the NATO statute."

The General Accounting Office recently inspected U.S. Army depots in all of Europe. Its conclusion: "Army directives for PER storage [were being] disregarded" everywhere. Germersheim and Kaiserslautern are indicated as the most serious cases. At the U.S. depot at Germersheim, PER canisters are stored under a roof, "but without walls." The material is "exposed to the weather," it disintegrates and rusts, after "having sweated" in the summer.

At other depots the upper limit for PER storage—a maximum of "27,500 gallons" (about 110,000 liters) per depot is exceeded by far: 189,000 gallons (about 756,000 liters) are being stored at Kaiserslautern, according to the U.S. report. Despite the increased danger of unobserved leakage created by this, there were "no proper catch basins" under the storage facilities. In the event of a leak, PER, which is extremely damaging to water, would thus be able to freely seep into the ground and the ground water.

The report about the decrepit PER canisters also becomes critical in view of the Gulf crisis, because in chemical warfare, PER—"DS 2" in U.S. military jargon—is used by the U.S. forces to decontaminate facilities and equipment. If a DS 2 resupply were to become necessary in the Gulf, it would probably come from the Palatinate.

An enormous risk, in view of the decayed canisters. If the chemical escapes, the General Accounting Office warns, there is also a danger to "people, since DS 2 can cause serious burns, damage to the central nervous system and the reproductive capability." Due to these risks, the General Accounting Office proposes changing to alternatives to PER, such as the one used by the U.S. Air Force: "hot soapy water."

Rheinsberg Nuclear Power Station To Close

LD1411172590 Berlin ADN International Service in German 1017 GMT 14 Nov 90

[Excerpt] Rheinsberg (ADN)—The nuclear power station in Rheinsberg is to be conclusively shut down. The Executive Board of the Energiewerke Nord AG has decided that the pressure water reactor, which has been in operation since 1966 and which was provisionally shut down five months ago, is to be shut down for good and that an immediate start should be made on the disposal of radioactive waste and nuclear fuel. [passage omitted]

Groundwater Pollution Research Projects Announced

Volkswagen Foundation Subsidizes Joint Team

91MI0003A Bonn TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN in German 31 Aug 90 pp 8-9

[Text] A comprehensive joint project has been set up between the University of Hannover Institute of Water Conservation, Hydrology, and Agricultural Hydraulic Engineering (Prof. R. Mull, project leader), the University of Osnabrueck Systems Research Team (Prof. H. Leith), and the Institute of Weed Research at the Federal Biological Center in Braunschweig (Dr. H. Nordmeyer) to investigate the dangers to drinking water supplies from agrochemicals. The Volkswagen Foundation has approved a total of more than 1 million Deutsche marks for these studies under its "Interdisciplinary Joint Projects in Engineering Sciences" funding program.

In the FRG, slightly more than 70 percent of all drinking water is extracted from undergound. Responsibility for supplying the public with water rests mainly with engineers, although they work together with colleagues from other disciplines: Geologists detect groundwater reserves, chemists and biologists assess the quality of the water, and toxologists set the maximum concentrations for the substances contained in groundwater.

In October 1989, the maximum concentration of active agrochemicals in drinking water was established by law at 0.5 micrograms (i.e., 0.0000005 grams) per liter. On a purely mathematical level, this would mean that 25 kg of agrochemicals would be enough to pollute the entire annual water consumption of a city with 500,000 inhabitants. But 25 kg is the amount of agrochemicals that farmers use each year to treat an area of five hectares. If we reflect that over 90 percent of all land officially used for agriculture in the FRG is treated with about 30,000 tons of agrochemicals every year (excluding forests and gardens), we get an idea of the drastic nature of the issues addressed in the project.

The questions that will be studied, however, are much more difficult and complex than this kind of calculation. Agrochemicals can penetrate deeper soil strata with rainwater and reach groundwater. They are then carried in the underground water to the wells where drinking water is drawn. Of course, they may be affected by a wide variety of factors during this journey. One crucial question to be answered during the project is the extent to which agrochemicals are biochemically degraded and reach the wells as innocuous substances.

Intense bacterial activity takes place in soil that is inhabited and interspersed with plant roots, so decomposition is faster there than deeper underground or in groundwater. Numerous reports on agrochemicals in groundwater demonstrate that the soil does not filter efficiently enough to protect the groundwater completely. These questions are being investigated in a systems research team headed by Professor Leith at the University of Osnabrueck. The movement and behavior of various agrochemicals in groundwater are being studied by Professor Mull at the University of Hannover.

Finally, Dr. Nordmeyer at the Federal Biological Center in Braunschweig will carry out a comprehensive experimental study to determine the mobility of agrochemicals in different types of soil and undertake the expensive, cost-intensive analysis work required to detect minute concentration of these substances in water.

The population is still guaranteed unpolluted drinking water supplies. However, these studies go further than merely recording the current state of affairs. The intention is to develop models capable of predicting the level of groundwater pollution in the years to come. Reliable forecasts are required as a basis for developing processes and taking steps to provide effective protection, not only for crops, but also for our drinking water.

Further information is available from Prof. R. Mull, Institute of Water Conservation, Hydrology, and Agricultural Hydraulic Engineering, University of Hannover, Appelstr. 9A, 3000 Hannover 1. Tel. 0511- 7622499.

Federal Environment Office Funds Bremen University Group

91MI0003B Bonn WISSENSCHAFT WIRTSCHAFT POLITIK in German 3 Oct 90 p 4

[Text] Bremen biologists and mathematicians intend to work together as an interdisciplinary team to clarify how the simultaneous occurrence of agrochemicals and tensides in water affects a sample organism, namely a particular species of monocellular green alga (Chlorella fusca). A research project on this topic, for which the FRG environment agency has granted a subsidy of almost 1 million Deutsche marks and which is entitled "Combined Effects of Pollutants (Tensides and Agrochemicals)," is now getting underway. It is being carried out under Prof. Horst Grimme by a joint biology and chemistry department team at the University of Bremen.

Umpteen thousands of environmental chemicals, in other words chemical substances that human activity discharges, either intentionally or unintentionally, into the environment, can be found in water, the ground and the air. And each substance acts differently. No influence on the environment can currently be attributed to some substances, whereas others make their presence clearly felt. In nature, individual substances never act alone, but always as a number of substances about which we know very little, which can by no means always be defined in precise chemical terms, and which are furthermore difficult to analyze because of their low concentrations. Moreover, each chemical can act in one way by itself and in a completely different way when combined with others: Their effects may neutralize, attenuate, enhance, or overlay one another and may be subject to the additional influence of chemical, physical, biological, atmospheric, and other factors. And if we already know very little about the effects of individual chemicals, we know even less about the combined effects of several chemical substances acting together.

Biologists already have much experience with the green alga Chlorella fusca; it is well suited for use as a biotest system and relatively easy to standardize. Various types of agrochemicals (herbicides, fungicides, insecticides, etc.) and tensides (including those used as additives in washing powders and as a formulation aid in agrochemicals) will be tested. There is a vast number of such substances to be investigated, but only about 150 to 200 combinations, each consisting of two substances, can be tested in the Bremen project's three-year schedule. For this reason, the substances will be selected during the first phase of the project to guarantee as representative as possible a cross section of widely-used groups of substances. The selected substances will then be tested individually and in different combinations on the green alga. The multiplicity of substances in our environment means that experimental tests cannot be carried out for anything approaching all the combined effects, so the project aims to test the extent to which biometric models are useful for predicting and assessing their nature and extent.

PORTUGAL

Country's Environmental Conditions Scored

91WN0048A Lisbon SEMANARIO REVISTA in Portuguese 20 Oct 90 pp 8-11

[Article by Jose Eduardo Barreiros]

[Excerpts] Portugal is a dirty, untidy, polluted country. No matter how much we try to "cover the sun with a sieve," the plain truth is: Our cities are the most polluted cities in this Europe we are so proud of being part of, and every day our countryside loses some of the typical green of our flora (both Atlantic and Mediterranean) to invasions by open quarries, thousands of hectares of eucalyptus planted solely for commercial purposes, and an

unchecked wave of subdivisions that threaten our farmland, already reduced to a paltry 28 percent of land area. The picture is clear. [passage omitted]

A Country of Waterways

Portugal is the country in Europe that has the most water. Every area has a river or a stream, but, although at one time—long ago—this was an asset for the people who live there, the situation is different now.

The condition of our water is not the best. You could even say it is bad. Of course, say the optimists, the Rhine is completely polluted, whereas the Tejo is polluted in only a few spots. But the realists [passage omitted] immediately retort: Those *small* focal points of pollution in the Tejo are enough to give us 97 tons of dead fish, floating on the surface. [passage omitted] Some serious situations are developing in Portugal's network of rivers, and only prompt and speedy intervention could correct what may already be beyond help.

Waterways in this condition are the Ave, Leca, Vouga, Sizandro, Lizandro, Nabao, Almonda, Alviela and Trancao Rivers; the Aveiro estuary; the Muge, Vala da Azambuja, and Alenquer brooks; and all the streams that empty onto the coastline at Estoril.

At present, the problem of waterway pollution is associated with the absence of facilities for treating domestic and industrial effluent. The majority of our factories, in contrast to the rest of the countries of Europe, where millions are spent on solid waste and effluent treatment, are only now beginning to concern themselves with this problem. And this is only because the Ministry of the Environment and the city councils are levying fines that can go as high as a half-million contos, when they find conspicuous instances of pollution and contamination of the waters through *negligence.*

The major sources of pollution of the Portuguese environment are the pulp and paper, textiles, and chemicals industries—in short, the nation's leading industries. Almost all centered in the regions of Braga, Porto, Aveiro, Estarreja, Lisbon, the Barreiro-Seixal corridor, and Sines, these facilities were set up without any thought for the environment. This makes it impossible now to set a deadline for having everything operating perfectly. [passage omitted]

Localized focal points of pollution, scattered more or less all over the country but still responsible for fairly serious instances of pollution and, in some cases, problems that can never be remedied, include tanneries, wineries, vegetable-oil-pressing plants, fish-processing plants, and even farms, if they make extensive use of agricultural chemicals. These activities, most of them legal, cause almost all the streams in Portugal to exhibit pollution levels higher than would be considered normal.

This year, the *production* of urban solid waste is estimated at 2.7 million tons. And this total seems even higher when you realize that Portugal has only two solid-waste-treatment stations—one in Lisbon and the other in Porto. Even more alarming: Our country has 305 municipalities, 275 on the continent alone, and only 111 of these are served by waste treatment systems employing sanitary landfills.

As regards hazardous waste, it is expected that one ton will be produced this year and that this figure will double by 1995. Of the total, 65 percent is produced by the manufacturing industry (especially the chemical industry); the other 35 percent comes from mining and electric power plants. Of this total (one ton of hazardous waste), 60 percent is concentrated in the Setubal region. And, although the problem may not lie in the geographical distribution of waste, it is serious that nowhere in Portugal is there any facility where this type of waste can be treated. Perhaps that was why an eminent Portuguese environmentalist once said, and offered proof, that the majority of that waste is strewn along National Highway No. 1, which is also where the containers that shipped that waste are washed. But the problem is that 72 percent of the hazardous waste comes from government-owned companies, and, as the river ranger said, who punishes those companies? [passage omitted]

Meanwhile, perhaps because the Portuguese environment is in such bad shape, the government is carrying out a program to "improve the quality of the environment and show appreciation for our natural heritage." It has appropriated 168.9 million contos for this effort, 63.3 million of which were used in 1989, 17.3 million are scheduled for this year, and the remaining 88.3 million will be spent in future years—which means, if green is the color of hope, all we can do is trust that it will also be the color of the environment within a very few years.

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