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CONTENTS PAGE

EASTERN EUROPE

INTERNATIONAL AFFAIRS

Polish Commentary on Environmental Protection in CEMA Countries Noted
(ZYCIE WARSZAWY, 22 Oct 76)..... 1

EAST GERMANY

Measures To Combat Eutrophy of Waters Discussed
(Thomas J. Bencard; BERLINER ZEITUNG, 9/10 Oct 76)... 3

Progress, Problems in Air Quality Discussed
(A. Hellwich, V. Gartemann; VOLKSSTIMME, 1 Oct 76).... 5

Briefs
Environmental Protection Funds 8

HUNGARY

Lake Balaton Given Only 10 Years of Grace
(ESTI HIRLAP, 12 Oct 76)..... 9

LATIN AMERICA

BRAZIL

Massive Deforestation Endangers Major River System
(Luis Ricardo Leitao; MANCHETE, 2 Oct 76)..... 10

USSR

RSFSR Council of Ministers Decree on Prohibiting Use of Bodies of Water Having Special State Significance
(SOBRANIYE POSTANOVLENIY PRAVITEL'STVA ROSSIYSKOY SOVETSKOY FEDERITIVNOY SOTSIALISTICHESKOY RESPUBLIKI, No 13, 1976)..... 17

CONTENTS (Continued)

RSFSR Council of Ministers Decree on Utilization and Protection of Water
(SOBRANIYE POSTANOVLENIY PRAVITEL'STVA ROSSISKOY FEDERATIVNOY SOTSIALITICHESKOY RESPUBLIKI, No 13, 1976) 19

Environmental Protection Measures in Armenia Outlined
(A. Savayan; SOVETSKAYA KIRGIZIYA, 25 Sep 76) 20

Soviet-Danish Environmental Conservation Talks Held in Tallin
(SOVETSKAYA ESTONIYA, 15 Oct 76) 22

WESTERN EUROPE

GREECE

Athens Bureaucrats Charged With Responsibility for Pineios Pollution
(Laz. Arseniou; O OIKONOMIKOS TAKHYDROMOS, 23 Sep 76) .. 23

NETHERLANDS

Government Fights Air Pollution
(F. G. de Ruiter; NRC HANDELSBLAD, 16 Oct 76) 28

POLISH COMMENTARY ON ENVIRONMENTAL PROTECTION IN CEMA COUNTRIES NOTED

Warsaw ZYCIE WARSZAWY in Polish 22 Oct 76 p 5

[Article by (niek): "Environmental Protection in CEMA Countries--The Future Belongs to Prevention"]

[Text] The ninth, consecutive meeting of the CEMA Council for the Shaping and Protection of the Environment with the participation of the representatives of Bulgaria, Czechoslovakia, Yugoslavia, Cuba, Mongolia, the GDR, Poland, Romania, Hungary, and the USSR, which just ended in Warsaw, was an occasion for balancing the achievements and also for specifying the aims and tasks which are emerging from the demands of the broadly conceived protection of the natural environment.

Concrete and effective activity, in the new field at any rate, which is the effective countering of the effects of industrial civilization on the state of the environment, that is, the atmosphere, water, and soil, implies the need to collect measurable initial data. To this end the council made a decision to establish an integrated system of control and also an information service. The scientific-research institute in Bratislava, which specializes in environmental protection, will take over the coordination role. National control-information centers will be established in the particular countries. It was decided to base this entire system on the principles prepared by the United Nations Environmental Protection (UNCEP) Program. This will assure comparability and, in addition, also the usefulness of the data.

Of the undertakings of a practical nature, the undertaking of efforts in the area of combatting air pollution, such as from diesel engines, merits attention. Also, the principles of the activity of the international association for purifying industrial gases have been prepared.

Another field of collaboration is the treatment of international waters, among them, the Odra River. Not only Poland, but Czechoslovakia and the GDR are interested in the status of that effort. The unusual complexity of the Odra River problem, however, requires the widening of the area of

bilateral collaboration of all the interested countries, which was presaged by the symposium on the preparation of the so-called non-effluent technology, held in Dresden in the spring of 1976. That problem will be the subject next year of the next meeting of experts who will take up the question of the need of industry for water. The council also adopted the principle according to which the treatment of international rivers will be of a priority nature.

Among the extremely fundamental tasks also is the taking over of the control of the use of DDT derivatives in order thereby to reach a basis for concrete decisions.

As a result of the analysis of the status of the incorporation of the jointly undertaken subject matter, which encompassed approximately 750 selected problems, the council confirmed the need to speed up concrete actions, suggesting, to this end, the concluding of agreements on collaboration between the industrial sector associations and the enterprises.

As it is known, the GDR, Poland, and the USSR are among the signatory states to the Helsinki convention on the protection of the environment of the Baltic. The Provisional Baltic Commission, which will convene in November 1976, will review, among others, the matter of preparations for the ratification of that convention by the interested CEMA countries.

The means for the protection of the natural environment undertaken to date are admittedly irrevocable, but the future of that environment--as Ivan I. Borodovchenko, the permanent USSR representative, stated at the press conference in Warsaw--belongs to prevention. It is not just the question of combatting the results, as it is of elimination of the causes through universal application of modern non-effluent industrial technology. And this is where the CEMA Council for Shaping and Protecting the Environment seeks the guarantee of effectiveness of actions on behalf of the cleanliness of the atmosphere, water, and soil surrounding us.

CSO: 5000

EAST GERMANY

MEASURES TO COMBAT EUTROPHY OF WATERS DISCUSSED

East Berlin BERLINER ZEITUNG in German 9/10 Oct 76 p 13

[Article by Thomas J. Bencard]

[Text] One contribution toward the realization of the Final Act of Helsinki was considered by the GDR to be the holding of the international symposium EUTROSYM 76 on the eutrophy and cleaning of surface waters which took place in Karl-Marx-Stadt in September within the framework of the environmental program of the United Nations (UNEP). In the following article some aspects of eutrophy are discussed.

The once so popular song of our world without water being just an empty barrel has become a threatening reality, at least for the experts. Of course, nobody really believes that there might be no water available at all within the forseeable future, but it is certain that with population, industry, and agriculture on the increase, the rising demands will necessitate an ever more careful handling of the precious liquid.

But this is only part of the problem brought about by the ever increasing thirst of our civilization. In fact, the task facing us is in essence much more complex because, unfortunately, the waters of our rivers and lakes -- and they, the so-called surface waters, contribute three-fourths of the water we use, while only one-fourth comes from underground water -- consist not only of two parts hydrogen and one part oxygen, as our school learning assumes. Tiny algae and microorganisms are swimming in good old H_2O in ever increasing quantity. Our waters are undergoing eutrophy, as experts call this process of undesirable high bioproduction through an overabundance of plant nutrients. Negative results of this rampant bioproduction are the overgrowing, silting, and sanding of our waters.

These developments are not only an obstacle to the joys of summer bathing. Other socially and economically unpleasant effects are the facts that the production of drinking water and water for other uses becomes considerably more expensive, the use of water for fishing becomes more difficult or even impossible, disease carriers can spread more easily, waterways become impassable and canals inoperable.

All this causes eutrophy to be a worldwide problem of such serious proportions that the United Nations has sent out invitations to a world water conference to be held in Argentina next spring. As a preparatory step, experts from 30 countries all over the world met recently for EUTROSYM 76 in Karl-Marx-Stadt and scanned the knowledge available on the mechanisms of eutrophy and the methods of water prophylaxis and water therapy.

Very intensive research on eutrophy is being done on an international scale. Much knowledge is already available. If nevertheless the details of the combined effect of various environmental factors on the waters is not yet sufficiently clear, the fault lies with the great complexity of the processes involved. Among the most important causes of excessive biogrowth are phosphorus and nitrogen compounds. Just 1 kg of phosphorus is believed to be sufficient for the production of over 120 kg of biomass.

The chief culprit, beside industry and individual households, is agriculture, which, through increasingly intensive fertilizing and industrialized animal production, contributes rising quantities of these nutrients. The combined action of the different factors is undergoing increasing analysis, as for example in the control system of our drinking water reservoirs, by means of automatic supervision machines and electronic data processing. Some indications are provided by aerial photographs which help to detect the degree and cause of pollution quickly, surely and without complication. In this connection, additional data can be expected from the pictures taken with the multispectral camera from the spaceship Soyuz 22 and from airplanes.

Several different ways are suggested for combating eutrophy, but the most effective is still adequate purification of sewage before it reaches rivers and lakes. A whole arsenal of more or less effective weapons against the biomasses in the waters has become known in the meantime. Mechanical or chemical and biological means are effective only if they are applied within the complex of problems and in the right doses. Two methods developed to an essential degree in the GDR have drawn international attention: underground water aeration, where water poor in oxygen is pumped from underground to the surface and enriched with oxygen, and underground piping, where water is piped from the bottom of lakes, where nutrients are deposited into ditches by way of natural water pressure. Because such underground water contains an especially large quantity of biomass, it can be spread over fields as a natural fertilizer. This tendency to cover, at least partially, the high costs of anti-eutrophy measures by utilizing the biomass and possibly by producing albumin is made clear by a measure which today is considered one of the most original: in the GDR as well as in other countries scientists are trying to use mirror and grass carp as weapons against plankton and algae. With what success only the future will tell.

8889
CSO: 2600

PROGRESS, PROBLEMS IN AIR QUALITY DISCUSSED

Magdeburg VOLKSSTIMME in German 1 Oct 76 p 4 of supplement

[Article by Dr A. Hellwich and Eng V. Gartemann, Bezirk Health Inspectorate and Institute, Magdeburg: "How Clean Is Our Air?]

[Text] Clean air is an important prerequisite for maintaining human health, improving working and living conditions of all citizens and for continuous development of the economy. Until now some 500 materials have been recorded that adversely affect the natural composition of the air. To some extent they appear in concentrations that are extremely hazardous to health and can substantially alter the microclimate. In overcrowded industrial centers ultraviolet radiation can be absorbed up to 30 percent by the smog layer. In such regions the number of foggy days is considerably greater than in areas with clean air. The amount of sunshine is also less in this area. While, for example, for the average of the years from 1963 to 1969 the number of hours of sunshine at Cape Arcona was 1,836 per year, in Halle (Saale) this figure was 1,520 and in Leuna 1,480. According to detailed determinations in 1966 England calculated an annual economic loss through air pollution of M 2.5 billion, in the GDR it was about M 1 billion just from corrosion.

For 10 years investigations of the degree of air pollution have been carried out by the Bezirk Health Inspectorate and Institute, Magdeburg, in the industrial centers of the bezirk, such as Schoenebeck, Stassfurt, Halberstadt, Blankenburg, Ruebeland and Magdeburg. The measurements are done as a rule in accordance with a so-called grid where the test points are fixed at the points of intersection. In recent time the content of air pollutants such as sulfur dioxide, hydrogen sulfide, nitric oxide and recently even hydrogen chloride was determined at 150 such test points and the results were in part evaluated by electronic data processing. In this way and by computational recording of emission from about 1,200 individual sources in the bezirk as well as emission of domestic fuel it is possible to make statements about the quality of the air. As a result of these investigations, for example, it could be determined that only a modest part of the bezirk surface area is involved, but an area in which quite a large number of people live. Magdeburg Bezirk is in ninth place in the GDR, in terms of surface area, as far as air pollution is concerned.

Locations for Areas of New Construction

The taking over of the capitalist heritage in the matter of distributing locations for industrial and residential areas still presents a difficult problem today. For that reason the search for suitable locations for new construction areas and industrial installations has dominant significance in the work of the health inspectorates. For many new construction areas in our bezirk which were established in the past few years it was possible to select locations which were favorable in the matter of clean air. In Stendal, for example, the new construction areas Stadtsee I to III are located on the west-southwestern edge of the city and provide good air conditions in view of the prevailing winds in our region, which come from west-south-west.

The amount of air pollution caused by domestic fuel and smaller industrial enterprises will become less in the future--even internationally--because from an economic point of view the trend toward a central heat supply has become established. The city of Zerbst may be cited as an example. Here a central heating plant is being built which will supply 14 small and medium enterprises with remote source heat when the final construction stage is completed.

Checking Enterprise Egotism

Nonetheless, there are also examples where there was a lack of complete understanding about how to harmonize economic interests optimally with the interests of environmental protection. In the southeastern mixed industrial region of Halberstadt the territorial organs have been trying since the mid-sixties to implement a uniform heat supply system for this region. The directorates of certain state enterprises in this area of the bezirk, which has the worst air pollution, can see, however, only as far as their own factory fences. Until now thinking independently has prevented them from joining together into an investment consortium, although all 14 enterprises must rebuild or expand their heating installations in the next few years. It remains to be hoped that in Halberstadt the plan for a central heating plant can be implemented and realized finally by 1980.

Millions for Dust Arrester Installations

According to legislation in effect in the GDR, enterprises and installations have to plan and implement long-term investments which guarantee improvement in maintaining clean air. The "Ernst Thaelmann" Heavy Machine Construction Combine VEB, Magdeburg, in accordance with the decision of the city council meeting of 29 May 1975, presented a program for maintaining clean air for the investment period 1976-1980. In this program about M 16.4 million are to be used for decreasing dust discharge from the melting enterprises and foundries by installing high value dust arrester units. For the inhabitants in the southeast city district and in particular in the new dwelling units

along the Leipziger Chaussee a substantial improvement in the current condition will appear. It is a question of timely implementation of this program with its extensive investment measures in the interest of the citizens of the residential area which borders directly on it.

Guidance for observation, control and supervision of air pollutants discharged (dust, sulfur dioxide) presents a task which in the next few years will become more and more important. In this regard prime importance is attached to the testing of the actual emission of those installations for which there is a maximum emission concentration value. In cases where this is exceeded the enterprise can be called upon to pay a dust and exhaust gas fine. The key issue in this activity is discussion and guidance about how the limits can be observed before reaching the point where fines for dust and exhaust gases are levied. In Magdeburg Bezirk there are already 80 enterprises for which a maximum emission concentration value has been established. To date, M 222,408 have had to be paid for dust and exhaust gas fines. These funds are at the disposal of the bezirk, in accordance with socialist legislation, in order to put through measures for adaptation and adjustment in cities and communities especially hard hit by air pollution.

Observance of air quality norms is possible only through the collaboration of health organs, enterprises and citizens. Many measures for keeping the air clean in enterprises can be realized with little cost and without larger investments if a corresponding value is accorded by the responsible managers to environmental protection alongside production.

12124
CSO: 5000

BRIEFS

ENVIRONMENTAL PROTECTION FUNDS--Cottbus--Approximately 500 million marks have been invested in the last 5 years in the coal and energy producing area of Cottbus to protect the environment. Well over half of this amount was spent on measures to maintain clean air in the industrial area of Lausitz. Even though powerplant capacities grew considerably, significant environmental improvement measures have been achieved. Emissions from smokestacks at powerplants and lignite combines as well as other industrial enterprises in this part of the country have been reduced 27.4 percent as compared with 1971. [Text] [Dresden SAECHSISCHE ZEITUNG in German 4 Oct 76 p 3]

CSO: 5000

LAKE BALATON GIVEN ONLY 10 YEARS OF GRACE

Budapest ESTI HIRLAP in Hungarian 12 Oct 76 p 4

[Excerpts] At a recent conference on the condition of Lake Balaton the findings of the conferees were summed up in the statement: "The situation cannot be termed catastrophic yet, because the waters of the lake as a whole will not become unfit for bathing for another 10 years. Till then it will be possible to stop further acceleration of the deterioration of the water even though it will not be improved."

The quality of the water differs greatly from one end of the lake to the other. At the northeastern end it is clear; at the southwestern end algae clouds the deeper parts. Conditions are worst in the area of Keszthely, Szigliget, and Bereny. Whereas 96 quintals of algae grew at Tihany in the course of a year, the amounts at Szigliget and Keszthely were 301 and 830 quintals respectively. In the latter regions algae has already replaced pondweed through shutting out light.

This is the area where all unfavorable changes have begun, including the tremendous fish kill of 1975. Keszthely is where the Zala River enters Lake Balaton bringing with it an influx of sewage and industrial and agricultural chemicals. The river deposits at least 20,000 tons of alluvium containing 1,000 tons of nitrogen and 200 tons of phosphorus annually into the Keszthely bay. On the other half of the lake at least two dozen smaller streams enter bearing 75 milligrams of alluvium per liter. The Sio River is the only river which flows out of the Balaton. However, it takes only 30 milligrams with it. The remainder settles to the bottom of the lake.

CSO: 2500

MASSIVE DEFORESTATION ENDANGERS MAJOR RIVER SYSTEM

Rio de Janeiro MANCHETE in Portuguese 2 Oct 76 pp 54-62

/Article by Luis Ricardo Leitao: "The Largest Dry River"/

/Text/ Historians say that it is the river of national integration. According to geographers, it forms the largest all-Brazilian hydrographic basin. To the humble people of the valley -- river bank dwellers, arid area inhabitants, boatmen and cowboys -- it is merely the Chico, Chicao or Velho Chico. Ecologists, however, do not view it under those auspicious aspects: They fear that the Sao Francisco River will be transformed into an intermittent or temporary river, wresting from the Jaguaribe River in Ceara a title which will endanger all others that it holds -- that of the largest dry river of the world.

The Sao Francisco has already faced terrible droughts and has had its waters reduced to a minimal volume, yet it continues to flow -- along one of the most arid regions of the world -- and to be one of the most important natural routes of the interior between the southern and northeastern sections of the country. When the huge 22-billion-cubic meter reservoir of the Tres Marias hydroelectric plant practically ran dry in 1971, the surface of the water of the river was reduced to less than 70 centimeters at Piraporas, Minas Gerais. For the first time, there was talk then about the possibility of the river drying up. The following year, the federal government created the Special Program for the Sao Francisco Valley, basically aimed at the reforestation of the headwaters of the river. The discussion of the dangerous drop in the rate of flow was renewed about a month ago. The level of the Sao Francisco at this time is lower than those registered in 1954 and 1971 -- the years considered to be the most critical -- a fact which requires the adoption of emergency measures to ensure the supply of electric energy for the Northeast.

The condition of the Sao Francisco tends to worsen. According to the authorities, a failure of the supply of electric energy to the Northeast does not take place only because the Sao Francisco Hydroelectric Company (CHESF) powers the Paulo Afonso plants with water from the Tres Marias Reservoir, and uses thermal electric generation during the peak hours in Salvador.

The water of Tres Marias is making possible a minimum outflow of 1,600 cubic meters per second at the mouth (1,000 cubic meters more than the Sao Francisco discharges from its own reserves), as well as navigation in the river from Pirapora, Minas Gerais, to Santana do Sobrado, Bahia. That did not occur in the drought of 1971, when river steamboats and large freighters had to stop on account of the thousands of sand bars and rocks which cropped up with the big drop. At that time, the overtaxed and depleted Minas Gerais reservoir could not supply Paulo Afonso -- a danger that is once more present at this time. Tres Marias, which at that time of the year operates at full capacity for the first time, already showed a drop of 7 meters by the end of July. By November, the drop could attain 18 meters and reach the limits of the capacity of the reservoir to continue providing Paulo Afonso with a full load. The dense woods of the headwaters of the Sao Francisco are outside the region devastated by the northeastern drought, and until November, rains are anxiously awaited at the river sources. If that fails, the CHESF will have to use thermal electric generation to take care of the northeastern demand, which will increase the costs of production in the whole region.

While in the opinion of former president of the CHESF Apolonio Sales, the river will never dry up on account of the devastation of the fauna, the soil and the vegetation "because it runs through a region where the vegetation was never abundant," in the opinion of the present president of the enterprise, Andre de Arruda Falcao, "the problem is to tell if the river will die in 10, 20 or 500 years." He notes: "It is true that the already historic deforestation of its margins has contributed considerably to the decrease of the volume of water and, consequently, to the shoaling in many places, including dams. But the ecological changes are not frightening for the moment. On a longer term and in the case no adequate steps are taken, problems could arise." Ecologist Vasconcelos Sobrinho, former director of the Forestry Service of the Ministry of Agriculture -- at present, the Brazilian Forestry Development Institute (IBDF) -- expresses himself more emphatically: "The Sao Francisco is doomed. It will perforce turn into a temporary river if the authorities do not come up with drastic and extremely urgent solutions. Located in an arid region devoid of vegetative cover, the basin lost its original capacity to retain rain waters, and to absorb them into the depths of the soil to feed the tables of the headwaters of the tributaries during dry spells." Engineer-agronomist Dirceu Duarte Braga, former director of the State Forestry Institute of Minas Gerais, is of the same opinion: "The Sao Francisco is heading toward intermittency at a fast pace. Deforestation will transform it into a dry bed over which the wild waters of torrential rains will drain with destructive and totally irreversible erosion." But the most dramatic dictum about the fate of the river is that of the river bank dwellers, arid area inhabitants, boatmen and cowboys, the quaint and resigned people of the river: "The day that the Chico dies, all that world comes to an end."

The Velho Chico was discovered by the expedition of Amerigo Vespucci and Andre Goncalves on 4 October 1501, day of Sao Francisco de Assis /Saint

Francis of Assisi7. To some geologists, it appears to be a river still under formation, in search of a definitive bed. Initially, it was simply a tributary of the Paranaiba River, from which it separated by the lifting of the ground. It then deviated at almost a right angle as an independent river, seeking the Atlantic Ocean. Its basin drains the waters from six states -- Minas Gerais, Bahia, Goias, Pernambuco, Alagoas and Sergipe -- and spreads over 640,000 square kilometers comprising 429 municipalities, some of them as big as the state of Israel. About 9 million people live in that basin, which is 7.5 percent of the total surface of Brazil and large enough to contain 7 countries of the size of Portugal, or 19 of the size of The Netherlands. The river -- which starts and ends in national territory -- makes up a country along its course of 2,600 kilometers. Some 2,000 books and papers have already been written about it. There are two springs, two thin threads of water which 50 meters farther on join into a rivulet which at times runs hidden in the grassland. Thus is the Sao Francisco River born in the Canastra Sierra of Minas Gerais, a region of calcareous sandstone which acts as a sort of water-retaining sponge. The area, however, is no longer very rich in vegetation. Within the boundaries of Minas Gerais, the river receives 75 percent of its waters and heads toward the north through thickset vegetation almost as poor as scrub. The effect of the droughts is not as hard on the thickets, and there one still finds patches of woods, particularly along the watercourses. Up to Remanso, in Bahia, the Sao Francisco receives an additional 15 percent of its reserves. From there on, it penetrates the wild scrub areas of the hinterland, and for nearly 800 kilometers -- up to the neighborhood of Pao de Acucar in Alagoas, already in the mouth -- it practically has no stable tributary. Yet, the Sao Francisco is the only permanent source of water for one of the most arid regions of the planet: low-lying and sparse vegetation, crystalline and inpermeable soils, maximum annual rainfall rate of 400 millimeters, 2,800 hours of sunshine a year, relative air humidity under 50 percent, very high temperatures (60 degrees Centigrade on the surface of the ground) and hot winds which blow at the level of the ground and of liquid surfaces at velocities ranging from 2 to 20 kilometers per hour. In the 17th Century, the Sao Francisco was also known as the River of the Corrals. A water route to the interior, it was used by exploratory expeditions which came from Olinda and Salvador, two important sugar centers of the time. The explorers sought lands for raising oxen and horses, indispensable for the sugar plantations of the seaboard and to supply the expanding settlements. The canefields prevented any livestock raising on the seaboard. Mediocre, but ample, grazing lands and natural licking spots of rock salt for the cattle proliferated in the river valley. Slave Indian couples or trusted tenants, calves and bulls could be seen in every corral set up.

Wealthy families vied for land grants in the valley, and in a short time, the Garcia D'Avila family, for example, controlled the margins of the Sao Francisco from the mouth to Juazeiro -- a breeding ranch 700 kilometers long. The cattle, profitably sold, brought progress to the valley and generated population centers around those corrals -- the towns of the future. Decadence set in at the end of the 18th Century: after the gold and sugar era ended,

the coffee cycle began, removing slaves and even the most enterprising ranchers of the valley to other areas. The transfer of the federal capital to Rio de Janeiro in 1763 marked the neglect of the region by the central government. From the last century until the 1930 revolution, the land lived under the colonels' despotism, the sole and deplorable sign of life in the forsaken area. There was, however, the historic exception of a different kind of colonel: Delmiro Gouveia, who installed the first hydroelectric plant on the river (1,500 horsepower) and a wire factory in the city of Pedra, Alagoas, in 1913. The plant and the factory were the starting point for the establishment of the CHESF in 1945. The most notable result of the restoration of official funds for the Sao Francisco basin was the establishment of irrigation projects -- true oases in the midst of the monochromatic dryness of the scrub which borders the river. The valley of centuries past still prevails beyond the limits of the projects. Professor Vasconcelos Sobrinho, former director of the Forestry Service of the Ministry of Agriculture (now the IBDF), explains: "The Indians, the primitive inhabitants of the region, burned the thicket and the scrub to plant small plots. The white man came in with the ox and fell heir to the predatory practice in seeking pastures for his herds and space for the plantations. Soon after, steamboats and railroads felled more trees to feed boilers and lay crossties. Since the time of the first man in the valley, stoves have consumed millions of hectares of forests. At present, the agricultural and livestock raising projects and the steel complex installed in Minas Gerais, in the area of the headwaters, consume the last remnants of the dense woods of the thicket and the scrub. Coursing through an arid belt, without subterranean tables to feed it, the river shrivels up. Who doubts that it will become temporary?"

According to Vasconcelos Sobrinho, the whole course of the Sao Francisco (as well as the sources of the basins of the Parana and the Parnaiba rivers) is located in the midst of what they call the large Brazilian central desert: an area of almost 3 million square kilometers (more than one-fourth of the national territory) which extends beyond the Dust Bowl and reaches the thickets of the Midwest and a large portion of Goias, Minas Gerais and Sao Paulo, coming to an end only at the swamps of Mato Grosso and the livestock-raising ranches of the South. Vasconcelos Sobrinho also says: "Huge and successive dams are being planned in a system of mutual dependence, the ones upstream supplying the ones downstream, and all feeding progressively more powerful hydroelectric power plants. The river will also have to irrigate millions of square meters of parched soils, nurture a predatory agriculture whose main farming implement is fire, and supply tens of cities confidently strung along its banks.

"In addition to all that, it must lend itself to being sucked by the insatiable greediness of a dangerously dehydrated atmosphere. We are aware of all that. Nevertheless, we believe that the river has an inexhaustible potential, as if it were an Amazon fed by huge forests and eternal glaciers, when actually it has only scarce rains at its headwaters and a table of underground waters dependent on those meager rains."

The limitation in trapping water at the sources is what differentiates the Sao Francisco from other rivers that run through arid or devastated regions. The Nile River in Egypt, for example, has two mighty sources located on high ground with a high amount of rainfall: one in Lake Tana in Ethiopia, and another in Lake Albert and Lake Victoria in Tanganyika. That is what ensures the permanence of its waters, although a considerable stretch of the Nile is located in the largest desert of the world -- the Sahara. The Sao Francisco also originates on high ground, though not comparable to the great African plateaus constantly exposed to the action of heavy rains. Thus it is that next after its sources, the Sao Francisco spills over the Casca-Danta Falls, which is beautiful but small in volume. There, the river of national integration commences its drama, which is intensified along its course by the phenomena of pollution, deforestation and erosion: phenomena which already injure it fatally in some stretches in the name of progress and the advance of the technological society of our times.

Agostinho Soares da Silva is 83 years old and has spent 50 years on the river. He is the oldest boatman of the area of Juazeiro and Petrolina. When he started working, a trip to Pirapora took 2 months. "I started on the Chico," he says, "when navigation was done by poling and rowing. I was the steersman, and another eight men propelled the barge. The men sang, and the pole caused a bruise under the arm, close to the chest. Until a callus was formed, which the men treated with boiling pork fat so that it would not turn into a pustema /meaning unknown/. The river was wide, deep, some 3 fathoms (about 6 meters) close to the margin. There were many woods, many flocking birds, many capybaras, many alligators -- that dangerous animal which sunned itself on the banks of the river. Those were hard, but good times. That is the way it was on the Chico, the Velhas and the Grande rivers, in that water world which is coming to an end." Joao Evangelista de Sousa, 33 years old, grandson of Agostinho, has spent 20 years on the river on the bow of the Diesel-powered boat "Primavera," which takes less than a week on a direct trip from Juazeiro to Pirapora. "That, with a good volume of water in the river, something that is becoming more and more difficult. From Pirapora to Januaria, the Chico turns so shallow that it takes great care not to push the bow into a rock or a sand bar. The Velhas? It is not even worth mentioning! It has been a year that a large boat has not reached even the mouth. I still see two or three alligators. Capybaras, only once in a while; a year goes by and I do not see any. The woods, as you can see, are disappearing. It is the lack of rain, the charcoal kilns throughout the valley."

The explanations of Evangelista, resident of Santana do Sobrado, receive the approval of Minas Gerais ecologists such as Dirceu Duarte Braga. In addition to the Velhas River in Minas Gerais -- already completely spoiled for large size navigation -- the Paracutu, Corrente, Grande, Urucaia and Carinhanha rivers, some of the largest tributaries of the Sao Francisco, have a limited outflow at this time and run the risk of becoming huge dry roads. The illness of the Sao Francisco is being transmitted to its sisters, crowning a terrible process of destructions unleashed 4 centuries ago.

The greatest threat stems from the headwaters, where immense areas are being deforested to produce charcoal for the steel plants and provide firewood for domestic use. The State Forestry Institute of Minas Gerais estimates that in 1979, when the local steel industry should produce 2.5 million tons of steel, 10 million cubic meters of charcoal will be consumed. If the reforestation goals of the steel mills are achieved, the contribution of eucalyptus trees should be 5 million cubic meters; that of wood from other areas, 4.5 million; and that of the jungles, 500,000. However, the deforestation of thickets will continue at its present rate of 150,000 hectares a year. Around the steel mills, the ecological balance is also greatly upset by the predatory access to the already scanty forest reserves.

The concerns of Brazilian ecologists are shared by U.S. botanist Robert Goodland, author of a confidential study made for the CHESF on the environmental impact of the Sobradinho Project. Goodland, considered one of the world's top authorities on ecology, is incisive: "The major water supply for the Sobradinho Project is more than 1,500 kilometers upstream, and a large portion of it is above the Tres Marias Hydroelectric Plant of the Minas Gerais Electric Power Plant, Inc (CEMIG). Although the problem is remote, indirect and shared by many, it would be an oversight of this report on the environment not to include a warning about the devastation of the basin. It is, however, difficult to evaluate that problem.

"The destruction of vegetation in vast areas definitely is the result of the degeneration of the environment, the depletion of the species, the decrease in the fertility of the soil, and the climatic and hydrologic deterioration. Without a detailed study of the present condition of the basin, it is impossible to predict accurately the effect of the project in question. In my opinion, this represents a real threat, although not closely associated with the activities of the CHESF. Industrialization, urbanization, population, breeding beyond the capacity of pastures -- particularly goats -- and intensive agriculture are being quickly accelerated in the upper Sao Francisco. This process has already led to pollution, landslides and serious erosion near Belo Horizonte, and may be partially responsible for the silting in the mouth of the Sao Francisco at Penedo, 2,000 kilometers below. Unchecked, that fast deterioration in that section of Minas Gerais could transform it into an unrecoverable desert. Strict measures for the protection of the basin should be applied on a federal basis. All conscientious users of the water should urge the government to act and help preserve the basin."

The government agencies act, but hesitantly, according to ecologists. Some 7,200 hectares were replanted around the Tres Marias Reservoir, and the steel mills carried out reforestation programs taking advantage of fiscal incentives. Notwithstandingly, Dirceu Duarte Braga remarks: "The only effective long-term solution is to protect the headwaters of the river by restoring the natural vegetation. But that reforestation cannot be accomplished as it is being done now, on the basis of eucalyptus and pine, trees of purely economic interest. Eucalyptus depletes even the subterranean water supply. Rather than help, it aggravates the problem of the rivers."

Geologically, the basin of the Sao Francisco is made up of two most dissimilar complexes: the crystalline and the sedimentary. The crystalline complex covers the largest portion, spreading over a large area of Bahia and Pernambuco. Composed of impermeable rocks covered with plain soil, it has a rather limited capacity to retain rain water. In the sedimentary complex, however, everything turns out differently. It is composed of vast amounts of limestone known to geologists as Bambui basin. Tragically, it is against that basin -- where the soils and the vegetation are richer -- that the whole forest devastation effort is directed. At this moment, there is taking place in the Bahia region a veritable run on those privileged lands, where tens of livestock-raising projects are being carried out with frightening speed and the destructive effect of fires. Vasconcelos Sobrinho says:

"We do not think in terms of artificially planted vegetation, but of spontaneously restored vegetation in the 230,000 square kilometers of the Bambui basin. It would suffice to remove man from the area with his goat, his donkey and his fires. Experience lends credence to the spontaneous restoration of any area as long as it is free of human beings. The first plant population will be established in 20 years. It will be completely restored in a century. Another 100,000 square kilometers along the margins of the Sao Francisco and its main tributaries, and on the hills and slopes would be added to that area. There are legal means to implement that policy."

It is a radical solution, but so is the problem of the Sao Francisco. It is an impractical way out for Prefect Geraldo de Sousa Coelho of Petrolina. That is so because the area to be preserved is the basis of the greatest official hopes that the Sao Francisco Valley will produce 50 million tons of food annually, actually becoming a national granary. How to decide between that fantastic granary and the absolute preservation of the area? Future generations will judge and decide which option will be followed. For the time being, suspended in the hot air of the valley is the phrase of Magalhaes Ferrari, secretary of the Boatmen Union, as he pointed to the exposed foundations (such as in the drought year of 1971) of the bridge connecting Petrolina and Juazeiro: "They are killing that river with ax blows." Or the phrase of the elderly boatman Agostinho Soares da Silva, based on the experience of his 83 years of age: "Young man, tell me: is it worth it to destroy that large amount of water?"

8414
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RSFSR COUNCIL OF MINISTERS DECREE ON PROHIBITING USE OF BODIES OF WATER HAVING SPECIAL STATE SIGNIFICANCE

Moscow SOBRANIYE POSTANOVLENIY PRAVITEL'STVA ROSSIYSKOY SOVETSKOY FEDERITIVNOY SOTSIALISTICHESKOY RESPUBLIKI in Russian No 13, 1976 pp 229-230

["On the Procedure for Partial or Full Prohibition of Use of Bodies of Water Having Special State Significance Or Special Scientific Or Cultural Value"]

[Text] In accordance with the decree of the USSR Council of Ministers of 11 June 1976 Number 452 and Article 20 of the Water Code of the RSFSR Council of Ministers, it is decreed:

1. It is established that partial or full prohibition of the use of bodies of water having special state significance or special scientific or cultural value, the regulation of which belongs to the jurisdiction of the RSFSR, is to be conducted by the RSFSR Council of Ministers according to the decrees of the Councils of Ministers of the autonomous republics, the kray, oblast and Moscow and Leningrad city executive committees.

2. It is be known that the USSR Council of Ministers by the decree of 11 June 1976 established that:

a) partial or full prohibition of the use of bodies of water having special state significance or special scientific or cultural value is to be conducted with the aim of protecting these bodies from contamination, clogging and evaporation; preserving their hydrological, hydrobiological, hydrochemical and hydrogeological systems in cases when a change in these systems might unfavorably influence the supply and the medicinal properties of mineral water, natural conditions of health resorts, the development of flora and fauna, the preservation of natural and cultural monuments and national forests, as well as for guaranteeing the preservation of the state boundary and for any other state need;

b) at bodies of water (or portions thereof), the use of which is completely forbidden, activity requiring the use of water and other natural resources is prohibited.

It is permitted to carry out scientific research work and work on improving the condition of the water and work providing for its conservation at indicated bodies of water in an established procedure. To accomplish these aims the bodies of water (or portions thereof) may be placed at the disposal of enterprises, organizations and institutions for individual use for a specific or indefinite period of time.

The use of indicated bodies of water to guarantee preservation of the state boundary, for firefighting needs and for realization of measures to prevent and eliminate natural disasters is permitted.

At bodies of water (or portions thereof), the use of which is partially prohibited, various forms of activity concerning the use of water and other natural resources are prohibited (continual or for specific periods).

Chairman of the RSFSR Council of Ministers, M. Solomentsev.

Administrator of Affairs of the RSFSR Council of Ministers, I. Smirnov.

Moscow, 9 July 1976, No 378

8504
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RSFSR COUNCIL OF MINISTERS DECREE ON UTILIZATION AND PROTECTION OF WATER

Moscow SOBRANIYE POSTANOVLENIY PRAVITEL'STVA ROSSISKOY FEDERATIVNOY SOTSIALITICHESKOY RESPUBLIKI in Russian No 13, 1976 pp 227-228

["On the Procedure for the Development and Approval of Schemes for the Complex Utilization and Conservation of Water"]

[Text] In accordance with the decree of the USSR Council of Ministers of 2 June 1976 Number 408, the RSFSR Council of Ministers decrees:

1. It is established that the development of schemes for the complex use and conservation of water having republic (RSFSR) significance is to be carried out by the RSFSR Ministry of Land Reclamation and Water Management with the cooperation of specialized organizations of other ministries and departments.

2. It is the obligation of the RSFSR State Planning Committee [Gosplan] and the RSFSR Ministry of Land Reclamation and Water Management to present to the USSR Ministry of Land Reclamation and Water Management proposals on projected long-term and annual plans for the development of schemes for the complex use and conservation of RSFSR water taking into account the proposals of the Councils of Ministers of the autonomous republics and the kray and oblast executive committees.

3. It is established that schemes for the complex use and conservation of water having republic (RSFSR) significance are to be approved by the RSFSR Gosplan according to an agreement with the RSFSR State Committee for Construction in accordance with a presentation of the RSFSR Ministry of Land Reclamation and Water Management.

The procedure for coordinating schemes developed for the complex use and conservation of water having republic (RSFSR) significance with corresponding ministries, departments and organizations is determined by the RSFSR Gosplan.

Chairman of the RSFSR Council of Ministers, M. Solomentsev.

Administrator of Affairs of the RSFSR Council of Ministers, I. Smirnov.

Moscow, 9 July 1976, No 375

8504
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ENVIRONMENTAL PROTECTION MEASURES IN ARMENIA OUTLINED

Frunze SOVETSKAYA KIRGIZIYA in Russian 25 Sep 76 p 4

[Article by A. Savayan: "Environmental Protection--For A Clean Biosphere"]

[Text] Gaseous emissions from the polyvinyl acetate plant Polivinilatsetat will no longer pollute Yerevan's air. A waste recovery and reprocessing device has begun operating here. Its creators, specialists from the Scientific Research Institute of Organic Chemistry of the Armenian SSR Academy of Sciences, have restored the harmful gases to the technological cycle.

Presently the republic's scientists are developing new means and methods in the battle against dumping harmful substances into the atmosphere. They have set for themselves the task of complex resolution of these problems--not only to clean the biosphere, but by virtue of maximum utilization of the waste products to increase industrial efficiency.

Artificial rubies and the dumping grounds of an aluminum plant. Who would think that they had anything in common? But from the waste products of this enterprise, the branch laboratory together with the Kirovakan Chemical Combine developed the technology to obtain pure aluminum alum--the raw material needed for artificial gems. According to the scientists' plan, every 400 tons of waste products from the Yerevan aluminum plant will become a component raw material for 2,000 tons of alum, and this is 49-50 tons of rubies, sapphires and alexandrites. The new technology will provide a considerable economic effect of 600,000 rubles and will help preserve the green slopes of the Razdan canyon from pollution.

By carrying out a complex environmental protection program, Armenia's scientists have put back into the technological cycle the waste products of many large industrial enterprises which earlier contaminated the soil.

From the beginning of the 10th Five-Year Plan, Armenia has widely been carrying out environmental protection plans, especially in regions with great industrial potential. In comparison with 1975, the realization of these plans will in 1980 allow for more than a 40 percent decrease in the amount of harm-

ful contaminants dumped into the atmosphere. Thanks to the establishment of closed water supply systems at Yerevan's and Kirovakan's chemical enterprises the use of water in closed cycle systems is growing by 70 percent. The active participation of scientists in the resolution of all these problems will assist in the efficient and rational use of the natural riches of Armenia. In the present five-year plan the dumping of industrial wastes into the Razdan, Debet and Vokhchi rivers and Lake Sevan has ceased. In the near future the first successive purification stations will become operational at such major enterprises as the Alaverdi Ore Mining and Smelting Combine, the Kanakerskiy Aluminum Plant and the Kadzharan Copper and Molybdenum Combine.

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SOVIET-DANISH ENVIRONMENTAL CONSERVATION TALKS HELD IN TALLIN

Tallin SOVETSKAYA ESTONIYA in Russian 15 Oct 76 p 1 LD

[ETA report: "Contacts Are Being Extended"]

[Text] Those participating in a session of the Soviet-Danish working party on scientific, technical and economic cooperation between the USSR and Denmark, which was held in Tallin 14 October, have stated that cooperation between Soviet and Danish scientists in the field of conservation of the environment is developing successfully. They discussed a program for further contacts and joint developments.

N.O. Hansen, head of the Danish delegation, noted in a conversation with an ETA correspondent that certain work of Estonian Soviet scientists was of great practical significance for Denmark. This applies, for example, to a model for forecasting and evaluating pollution in small rivers.

V. Sokolovskiy, leader of the Soviet delegation, said that the USSR was interested in the activities of Danish scientists and specialists in the field of environmental conservation and was purchasing certain types of equipment created in Denmark.

CSO: 5000

ATHENS BUREAUCRATS CHARGED WITH RESPONSIBILITY FOR PINEIOS POLLUTION

Athens O OIKONOMIKOS TAKHYDROMOS in Greek 23 Sep 76 pp 15, 34

[Article by Laz. Arseniou: "Athens Bureaucrats Are Responsible for the Pollution of the Pineios River"]

> [Text] They refused to take any initiative for the establishment of an industrial zone and now they talk of an industrialization glut!

Once again this year central Thessaly is up in arms over fish mortality in the Pineios. This phenomenon has taken place repeatedly during the past 15 years. Officially, it is attributed to the fact that the river water sometimes loses its oxygen content because of the pollution caused by the effluent discharged into it, previously from the Larisa paper mill and now from the Larisa sugar factory. But can this be blamed as the only reason? Certainly not, answer those who are in a position to know. The Pineios has become the only "drainage system" into which flow all the factory wastes from central and western Thessalia, the Trikala and Larisa sewers as well as those from other cities and towns. The configuration of the terrain is such that all the water from taps, streams, torrents and tributaries ends up in the Pineios. But it is precisely in these tributaries, taps and streams where farmers rinse their agricultural pesticides containers and where they consequently pour out all the pesticide residue, which happens to be poisonous. And so it is that all the effluent from the plains and mountains of Thessalia and from the towns of Kalambaka, Trikala, Mouzaki, Karditsa, Sofades, Farsala, Farkadon, Tyrnavos and Elassona end up in the Pineios.

Pineios observers are saying that its "health" is not of the best. The term "health" is being used about the river because the Pineios is sick, gravely so. People are polluting it because some central services are thoughtless, because environmental conservation has not yet become a matter of wider awareness and because the interest of the central administrative services responsible for the development of wealth-producing resources and for industrial development is minimal and purely theoretical. This is the conclusion derived from a brief analysis of the causes for the pollution of the river.

One of these causes is the agricultural pesticides residue. Up to now no attempts have been made on the part of any organization or service to advise farmers not to pour out the residue into running water or to rinse their containers in it, especially the large mechanical sprayers, but to use instead septic tanks or other means for the purpose; and this, because no matter which waterway they would use, the residue will end up in the Pineios.

Industries

Industrial wastes from the central and western regions are still another source of pollution. These, too, end up in the Pineios. The lack of a planned and rational system in the location of these industries contributes to their dispersion and to the establishment of each one wherever most convenient, a policy which results in anarchy in city planning and disorder in health-related matters. For example, the cities of Larisa and Trikala have been struggling for years to have the central services in charge define a zone within their areas where industries should be located, but these services, which insist on always having the last word even on the most insignificant matter, refuse to do so, and the pretext they invoke is that they "have the matter under study"! But development does not wait, and the interested parties erect their factories wherever seems most profitable for them, with the result that Larisa, for instance, has been blocked on all sides by tens of industrial structures--some of them quite large--which have sprouted in the past few years, the period, that is, during which the Athens services "have been sutdying" whether factories will be built in Larisa and Trikala. The very same sin, then, is being repeated in the course of two decades, with terrible consequences for the cities and the people, without the Athens many-headed monster admitting that this is not lack of wisdom, but simply mindlessness. It is actually common sense that is lacking and not wisdom. More specifically, the first time right after the liberation, the municipalities requested the extension of city plans so that their growth rate could be projected. The Athens services, on the basis of their own statistics and their own evidence, did not approve the request, and so Larisa, for instance, in the absence of a systematic program grew by some thousands of acres and acquired some tens of thousands of unplanned structures. Thus, while in eastern and western Europe all the old cities and towns have been rebuilt with large and wide avenues and modern buildings, in contrast, around our old cities little houses have sprouted topsy-turvy along streets narrower than those which had taken shape in the old cities from the time of the Turkish domination.

As if this bankruptcy of the central administrative services which have condemned the cities were not enough, even in Athens city-planning anarchy is repeated with the factories. Instead of these services trying their best to compel the municipalities to define a certain zone for the establishment of factories, they have obstructed and are still obstructing the determination of such zones, with the result that factories built "high-handedly" in the meantime, have "closed-in" the city from all sides. But

it is precisely the dispersion of industrial buildings that prevents the systematic control of waste material and its treatment under common auspices, which would reduce costs and get the waste to the Pineios in the least onerous way. Because of the way these factories were established, control at present is unbelievably difficult and it is unimaginably expensive for each factory to treat its effluent separately. The end result has been that the Pineios has become polluted. This was the reason invoked by the ministry in charge, which rushed to point out in a special circular that the pollution of the Pineios has reached the saturation point and that no permits should be issued from now on for the establishment of new industries. As it happens, it is exactly the same ministry responsible for the chaotic conditions in the establishment of industries which, instead of searching for ways to repair the damage, resorts to negativism and to an undemocratic ban which is not constructive and will naturally not be adhered to in any way. And this is what is termed a positive attitude towards development in order to reach European standards.

Thessaly is the country's richest agricultural area, from whose development the state expects to secure the necessary means to keep up with EEC (European Economic Community). However, the development of Thessaly--which today produces half of all Greek cotton--without carrying out the required tasks, means agricultural industries, which are all heavily water-consuming and consequently discharge a great deal of wastes. According to Athens, either Thessaly must remain undeveloped to spare these services the trouble of performing fruitful tasks, or the agricultural produce must be sent elsewhere for processing, something both impossible and unprofitable. Agricultural produce cannot withstand the rigors of transportation, and furthermore, to transport it for processing a long distance away from its source requires enormous expenditures, which would make its competitiveness within the EEC impossible.

The cities of Larisa, Trikala, Karditsa, Tyrnavos and others have been clamoring for years for a systematic sewage network and if possible, the joint treatment of their effluent, but the whole problem is taken up separately and at a very slow pace. As a result, all their effluent ends up in the Pineios together with all the polluting material and other acids that are perforce used today in housekeeping tasks.

Sugar factory wastes

To this chronic state of affairs can also be seasonally added the aggravation from the wastes of the Larisa sugar factory which begins functioning on July of each year, at the time, that is, when the level of the river reaches its lowest point and its capacity to absorb more wastes is thus further reduced. It happened that this year the sugar factory's productivity has increased, which means a concomitant increase in the amount of its effluent. It seems that during a certain phase of its operation, its waste material escaped control for a period of time and accordingly reached the Pineios without benefit of previous treatment.

This was enough to trigger the mortality of fish by the thousands. The waste material from the factory contains lime and other nitrous matter which, upon reaching the river water, promote fermentation and consume its oxygen content. Through its flow, the water is able to retain oxygen from the air in a relatively short distance, but in the meantime any schools of fish caught in the spot lacking oxygen die asphyxiated.

The phenomenon of periodic fish mortality in the Pineios due to this cause has been followed during the last 2 or 3 years by another, reported by the farmers. Cotton, beetroot, tobacco, vegetable plants, etc., all wither when watered from the Pineios after the sugar factory begins to operate. The damages that result from the plants' withering are increasing year by year. They are said to have amounted to 15 to 20 percent in the past, while this year they are estimated to go up to 40 percent. Furthermore, the withering phenomena have reached some fields which lie the length of the river all the way to Tembi, at distances of approximately 25 kilometers from the sugar factory. On top of that, farmers are complaining that the polluted water corrodes aluminum irrigation pipes, bronze water sprinklers, pumps and generally all metal objects which come in contact with it. Officially, the services in charge have avoided voicing an opinion on this phenomenon. Unofficially, though, knowledgeable agricultural experts are saying that withering is the result of acids in the waste material. But the sugar factory does not use acids and the question "whence these" remains.

In certain villages, as for example in Koulouri and Girtoni, whose inhabitants live closer to the factory, there are complaints of rashes suffered by those whose task it is to water and who necessarily come in contact with the water. The rashes produce itching, and superficial wounds are caused by light scratching of the skin. Health authorities deny that there is any connection between the rashes and the waste material. At any rate, research is being conducted and conclusions will not be known for a long time.

Besides all this, there are also some intuitive reasons. Horses, sheep and other animals refuse to drink river water when led to it at watering time. Their disgust is the result of intuition. It is a fact that at certain places along the river, mainly in the vicinity of the waste discharge, the water acquires a dark coloration and emits an unpleasant odor over a relatively large radius, a real torture for all who work around there.

Along general lines, these are the phenomena caused by the pollution of the Pineios. But phenomena of this kind increase and become more extensive every year, something which drives the inhabitants of the region to anger and struggles, besides producing adverse economic results. If the state, in response to this situation, limits itself to inspections, which do take place regularly, and does not assume appropriate measures soon,

conditions will deteriorate. What is needed is for the responsible services in Athens to first convince themselves that environmental conservation must be a steadfast pursuit and must accompany every proposal for industrial development, the use of agricultural pesticides and polluting materials, expansion of cities, etc. Care is therefore needed for everything and on everybody's part.

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GOVERNMENT FIGHTS AIR POLLUTION

Rotterdam NRC HANDELSBLAD in Dutch 16 Oct 76 p 3

[Article by F.G. de Ruiter]

[Text] The Hague, October. -- The middle of November the Lower House will discuss the appropriation for environmental protection, and on that occasion Minister Vorrink will for the first time present an "indicative five-year plan" to combat air pollution over Dutch territory. Indicative means that the plan, intended for the period from 1976 to 1980 inclusive, comprises no fixed policy commitment on the part of the government. Instead, it gives guidelines for ministerial plans, a general route that should be followed during the next few years.

According to Article 83 of the Air Pollution Law, the minister is to set up such a plan every five years. The law came partially into effect in 1970 and was fully in force on 18 September 1972. Mrs Vorrink has thus been quite late in carrying out her duty.

As an excuse for the delay she says that when the law came into force neither the department nor the provinces had enough expertise, because experience was limited. Moreover, according to the minister, taking measures to carry out the law took up so much time on the part of the available officials that the five-year plan got crowded out.

Advice

Meanwhile, the legal requirement to consult the council on air pollution before presenting the final program to the lower house has indeed been satisfied. That is an official government advisory agency consisting of 25 members and an equal number of alternates, chosen from local government agencies, the three categories of causers of air pollution (namely house heating, traffic, and industry), and groups concerned with the fields of public health, agriculture, recreation, and protection of nature.

That council was called upon on 16 July to offer advice by the end of August at the latest. The advice was given, although the dateline was overrun by nearly two weeks -- a period that was still too short, according to the council, to do justice to the requirements of the law. The report contains

a rather peevish passage complaining that the time allotted to the council (six weeks during the vacation season) is not in proportion to the time the minister herself has taken to prepare the five-year program (her whole term in office).

In regard to the formulation procedure, the council has still more grievances. "The draft plan would have gained in value if at the time of its formulation there had been intensive consultation with all groups concerned. In particular, the views of the provinces, which, after all, are also involved in carrying out the law, are not to be traced in the draft... It is a document that was typically written from the point of view of the central government."

Sulfur Dioxide

On the content, too, there are many notes and remarks, especially concerning sulfur dioxide (SO_2), a sore point in discussions of the environment today.

Sulfur dioxide is released in the combustion of oil and coal. In recent years the concentrations of this substance in the Dutch atmosphere have declined considerably. That is due to the fact that the use of oil to fire domestic and industrial furnaces and to create power has yielded in large part to the use of sulfur-free natural gas.

But the reserves of natural gas are limited, and the government wants to reserve this splendid fuel for "small consumers" -- heating houses, offices, and small businesses. The big consumers -- industries and electric power plants -- must switch back for the most part to oil, and that is happening.

The result is an increase in the emission of sulfur dioxide -- a disturbing phenomenon that Mrs Vorrink wants to do something about. Her policy, as appears from the five-year plan, is aimed at preventing the total emission from exceeding 500 million kilograms a year. That is the amount that was registered in 1972, and she wants to "freeze" this form of air pollution at that level.

It is anticipated that if no changes are made, the total sulfur dioxide emission in 1980 will be 700 million kilograms. Various ways are open to bridge that gap of 200 million kilograms: reducing the emission by applying desulfurization techniques and a reduction in the sulfur content of the fuel. As to the latter, this summer the permissible sulfur content of heavy fuel oil was reduced from 2.7 to 2.5 percent, and beginning 1 January 1980 2 percent is to be the maximum permissible amount.

The air pollution council clearly sees the necessity of taking measures, but wonders on what basis a "freeze" at the level of 500 million kilograms was decided on. And immediately after that it wants to know how the government can be sure that that ceiling is technically, logically, and financially and economically maintainable.

All this is now in the official report of the council. A good deal of

discussion preceded the report, and on that occasion the representatives of industry sharply opposed Minister Vorrink's plans.

Minority View

They pointed out, for example, that factories which use a great deal of energy would, as a result of the proposed restriction, be put in a poor competitive position in regard to foreign industry, and that the differing sulfur requirements would bring about obstructions of trade. They pointed this out as in conflict with Dutch interests.

Various points were presented as minority views, and the industrialists wanted them included expressly in the report as an amendment.

This met with resistance from, among others, the chairman, Engr S.H. Visser, former minister of defense and ex-mayor of Den Helder, who considered it sufficient for the minority standpoint to be included in the appendices. But the industrialists continued to insist, through their spokesman Mr N. van Lookeren Campagne, and were rewarded with a vote. The proposal was rejected by a hair (eight to seven); the industrialists' amendment would not be part of the general report, but would be included in the appendices.

In spite of the vote, Mr Van Lookeren continued to dwell on the matter, and that brought him a reprimand from the chairman, who said that further discussion was beneath the dignity of the meeting and if Mr Lookeren was not in agreement with the procedure, he could appeal to the minister.

The matter stopped there for the time being, at least in the council. The report has now been sent to the ministry of environmental protection, and the question now is to what extent the views of the council will be expressed in Mrs Vorrink's final five-year plan. That will soon become clear when the plan is presented to the Lower House.

Meanwhile, we have seen once again what a controversial point the sulfur dioxide question has become. What was said about it in the council was only a part of the discussion, and it can flare up all over again.

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