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JPRS L/9772

5 June 1981

Worldwide Report

ENVIRONMENTAL QUALITY

(FOUO 4/81)

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CZECHOSLOVAKIA

WEATHER MODIFICATION TO BOOST AGRICULTURAL PRODUCTION CONSIDERED

Prague CESKOSLOVENSKY CASOPIS PRO FIZIKU in Slovak No 1, Jan 81 pp 83-85

[Article by Dusan Podhorsky, Hydrometeorological Institute, Maly Javornik Branch, Bratislava: "A Proposal for Actively Influencing the Weather in the Slovak Socialist Republic"]

[Text] 1. Introduction

The results of agricultural production, especially crop production, depend to a considerable degree on the weather and especially on the amount of precipitation, which are considered as objective factors in producing harvests. Intensifying factors can only decrease the negative effect of meteorological phenomena to a certain degree. Current theoretical and experimental findings in cloud and precipitation physics create effective conditions for modifying mesosynoptic processes in order to improve the effectiveness of agriculture, particularly with respect to protection against hail, weakening of thunderstorm activity and influencing total precipitation.

2. Some Methods of Modifying Hail-Containing Cumulus Clouds and Total Precipitation

We can influence the porcess of hail formation in cumulus clouds by several methods:

--complete crystallization of the supercooled part of the cloud;

--intensifying coagulation through acceleration of crystallization;

--breaking up the hail by an explosion in the cloud;

--dynamic effects, i.e. disruption of convective clouds by creating dowadrafts, for example, by bombarding cumulonimbus clouds with cement;

--shortening the path of growing hailstones;

--creating a large number of manmade hail nuclei in the growth zone which will compete with the natural hail nuclei.

We propose the use of the last of these methods in Slovakia.

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The basis of regulation of total precipitation is a hypothesis based on the Bergeron-Findeisen mechanism. It is assumed that the low effectiveness of the natural precipitation process results in most cases from an insufficient quantity of ice particles in the cloud. The main method of artificially regulating precipitation is seeding the supercooled zone of the cloud with ice-forming reagents such as silver iodide, dry ice and the like. The success of this type of weather modification depends on correct determination of the optimal quantity and degree of dispersion of the reagent and on choice of the zone in the cloud in which the seeding will be most effective. Thus far two main methods have been used for regulating precipitation:

--concentrated seeding, aimed at affecting the dynamics of the cloud by releasing sufficient heat of condensation, and

--seeding with a relatively small quantity of reagent so as to intensify microphysical processes leading to precipitation.

3. The Effect of Hail on Agricultural Production in Slovakia

Thunderclouds have been effectively modified for more than 20 years in many countries for the purpose of preventing hail. The agricultural areas which have been protected against hail to date amount to about 300,000 km^2, including 140,000 km^2 in the United States, 60,000 km^2 in the Soviet Union, 50,000 km^2 in Yugoslavia, 10,000 km^2 in Bulgaria and 2,200 km^2 in Hungary.

Currently 65 countries are interested in modifying hail processes in convective clouds. In most agricultural regions of the world, average harvest losses from hail amount to 15 to 25 percent, and crop damage worldwide amounts to about 50 billion korunas annually.

In the course of 15 years, the Soviet Union has been able to decrease hail damage by about a quarter. The return on each ruble invested for this purpose in the USSR has been: 9.31 rubles in the Moldavian SSR, 7.82 rubles in the Azerbaijan SSR, and 5.03 rubles for the USSR as a whole. The orography of our country creates excellent conditions for the production of hail in certain parts of Slovakia. The variety and efficiency of agricultural production also affect the size of the losses caused by hail in certain regions.

Expenditures on protection from hail damage in Slovakia during 1969-1978 were Kcs 1,541,000,000, including 997 million in the West Slovak Kraj, 369 million in the East Slovak Kraj and 175 million in the Central Slovak Kraj. The size of compensation for hail damage varies widely in both time and space, but is almost always largest in the Danube valley. The most catastrophic years have been 1978 (damage amounting to Kcs 183 million), 1975 (Kcs 180 million), 1977 (Kcs 154 million) and 1972 (Kcs 142 million). The highest average crop damage in Slovakia has been suffered by grain crops, vineyards, vegetables, root crops and oil crops.

In terms of the national economy, these losses are considerably increased by the amount of foreign exchange expended on increased imports of agricultural products.

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4. A concept for Modifying Mesosynoptic Processes in Slovakia

The first concept for protecting agricultural crops from hail was developed at the Bratislava Hydrometeorological Institute, Maly Javornik branch, in 1972-1974. This concept assumed three stages:

a. A research stage (based on cooperation withthe Institute of Atmospheric Physics, CSAV, the Antonin Zapotocky Military Academy and the Institute of Inorganic Chemistry, Slovak Academy of Sciences), during which the following were planned:

--development of the Czechoslovak MRAK rocket to carry the reagent into thunderclouds;

--the development of numerical models of convective clouds;

--the development of an inorganic reagent based on montmorillionite;

--the development of reagents on the basis of results obtained at the Institute of Atmospheric Physics;

--the development and application of high-frequency radiation polarimeters to determine the degree of pollution of cloud particles.

But the main task in this stage was that of establishing a casual relationship between modification efforts and their results and making a quantitative evaluation of the results.

b. During the testing stage it was planned that the earlier research work would produce a physical theory and methods of modification and would designate locations and areas to be protected against hail, would establish means of monitoring results and the like, and that an attempt would be made to evaluate the success of the experiment by a randomization method.

c. The operational stage would be detailed on the basis of the results achieved in the preceding stages.

This concept was discussed at ministry and interministry levels without any definitive conclusions. Most of the research stage was carried out, but the interministry ties required for the testing and operational stages were not arranged. After the 13th session of the CPCZ Central Committee in 1979, the SSR Ministry of Agriculture and Foods and the Bratislava Hydrometeorological Institute were assigned the task of developing a new proposal for weather modification in Slovakia and for meteorological radar dispatching in the management of agricultural work. The new proposal has been developed and calls for the building of a rocket launching area in the central Danube valley for the protection of about 200,000 hectares of cropland against hail. The protected area will include most of Komarno and Nove Zamky okreses and part of Gilanta, Dunajska Streda, Nitra and Levice okreses. The new concept differs from the preceding one primarily by the fact that the hail protection would involve application of Soviet methods and training of specialists in the Soviet Union, as well as the purchase of a set of Soviet equipment including launchers, radars, rockets, reagents and the like.

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It is proposed to build the control center for the launching area at Surany (23 workers, investment expenditure Kcs 20 million) and 17 launching bases (agricultural enterprises will provide personnel for 7 months, investment expenditure Kcs 30 million). The operating expenses for a single season, including wages, are estimated as Kcs 10 million. A 5-year testing period is proposed. Expenses would be covered from the damage protection fund of the Slovak State Insurance Co and from the state budget.

The technical equipment of the control center will make possible uninterrupted year-round operation and its use in the winter period to increase total precipitation.

The plan for modification of winter precipitation by using aircraft to disperse a reagent based on Co_2 through the clouds is proposed for about 1990 and will be based on experience with the method by the Ukrainian Scientific Research Institute of Hydrometeorology in Kiev, which currently is increasing total winter precipitation by an average of 30 to 35 percent in an area of 2,000 km^2.

Conclusion

By the term "modification of mesosynoptic weather phenomena" we mean a close relationship to atmospheric phenomena which we wish not only to influence through our findings, but also to study so as to get a feeling for these phenomena and ways of perceiving them and forecasting them, and even for how they can be intentionally produced, and especially for their significance and ecological implications. In this context we should quote Eve Curie: "We should ask ourselves whether mankind might gain something when he investigates the secrets of nature, whether he is mature enough to derive some use from it, or whether this knowledge may be harmful."

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CZECHOSLOVAKIA

ECOLOGICAL CONSIDERATIONS TO CONTROL AGRICULTURAL CHEMICALS

Bratislava AGROCHEMIA in Czech No 2, Feb 81 pp 56-57

[Article by Eng Jan Obenberger: "Plant Protection Compounds and Environmental Protection in the Czechoslovak Socialist Republic"]

[Text] During the 20th Century, thanks to great technical progress and steadily improving health care, the number of inhabitants of our earth has been growing constantly. Porviding food for so many people is creating difficulties even for the economically developed countries. One of the main inteisifying factors involved in increasing agricultural output is chemicalization, i.e., the effective and economical use of agricultural chemicals in plant and livestock production. The current trend in agriculture is the changeover from dispersed small-scale agricultural production to large-scale production, which provides optimal possibilities for using agricultural chemicals, particularly under conditions of concentration and specialization. We include among agricultural chemicals, first, chemical fertilizer, which has been used successfully in agriculture since the 19th century. In the second place are pesticides, i.e., plant protection preparations, whose production and use increased immensely after the end of World War II, when the appearance of new chemicals such as DDT and HCH (lindane) as well as herbicides based on the phenoxy derivatives of aliphatic acids and on triazine and other important pesticides altered plant protection methods.

The use ofchemicals to protect plants is unquestionably beneficial, but it also entails certain negative consequences, because pesticides can considerably disrupt the environment in various ways. The environment and its protection have become in recent years one of the most frequently and animatedly discussed topics, not only among the specialists involved, but among the general public as well. Accordingly, both the highest level international organizations and many other institutions in the individual countries are involving themselves in these questions.

The concept of the environment is extremely broad and thus may be defined in various ways. The official Czechoslovak definition is as follows: "The environment is the totality of natural, manmade and social components of the material world which are or can be in direct interaction with man." The environment must be conceived dynamically, as an ecosystem which is undergoing continual development. The individual components of the environment are interrelated by direct and feedback connections and thus constitute a whole which behaves differently from the mere sum of its parts.

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Among the important disruptors of the environment are the products of the chemical industry, i.e., pesticides, which can disrupt it in various ways, such as contamination of the air, soil, water, feeds and food crops, which in turn has a negative effect on man and harms livestock, game, birds, fish, bees and other useful insects, microorganisms in the soil and the plants that are treated. In addition, pesticides may also have disruptive effects on the entire biocenosis and ths disrupt biological equilibrium. Accordingly their application must be carefully monitored from a territorial-ecological standpoint.

To avoid undesirable side effects from the application of pesticides, not only their biological side effects but all side effects are currently monitored. However, it has become extremely complicated and financially burdensome to test and approve new pesticides and commercial preparations. In Czechoslovakia the protection of workers, the public and the environment from the harmful effects of pesticides is encompassed by a considerable number of legislative provisions. There is no single comprehensive law or other legal instrument on pesticides thus far, although the possibility is being considered for the future. In general we may say that Law 20/1966 Sb on welfare and human health and Law 61/1964 Sb on the development of crop production have the basic role. These legislative documents are rather complicated and from time to time must be supplemented and revised with the inclusion of suitable new provisions. The classification of poisonous chemicals, including pesticides, is based on State Statute 56/1967 Sb on poisons and other substances harmful to health, and on the provisions in execution of this statute which are included in Law 57/1967 Sb. These documents provide a division into especially dangerous poisons, other poisons, and non-classified substances.

Only pesticides which have been approved by the chief public health officers of the CSR and SSR following consideration of all the risks which they present to humans, livestock,game, fish, birds, bees and beneficial insects can be put into circulation in Czechoslovakia. Each pesticide is thus comprehensively evaluated from the standpoint of environmental protection.

In Czechoslovakia, the National Reference Laboratory for Toxicology of Pesticides and Their Residues, under the Institute of Public Health and Epidemiology in Prague, and the Research Institute of Preventive Medicine in Bratislava, deal with the toxicity of pesticides and the toxicological risks from their residues. The public health and toxicological requirements for evaluating pesticide risks deal with hygiene and work safety in their production, distribution and application,and also with their residues in the environment. By residues we mean remnants of the active pesticides themselves and their decomposition products. Evaluation of the toxicological risks presented by the residues cakes account of acute toxicity (oral, inhalation, dermal and the like), subacute toxicity (short-term tests), biochemical studies and metabolism, chronic toxicity (long-term tests), carcinogenic, mutagenic and teratogenic properties, neurotoxicity and the like. Study of the development of residues, including the final ones, in the environment, and analytical methods for determining their presence and their effect on the biological values of food crops are also an essential part of comprehensive risk evaluation. All available results of toxicological research are used toestablish an "acceptable daily intake" (ADI) or in some cases a "temporary ADI" for pesticide residues. In special cases, where it is necessary to limit and, as far as possible to replace, undesirable pesticides, a "conditional

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ADI" is recommended. This is the toxicological basis for establishing tolerances (maximum limits) for residues of approved pesticides in food crops and foodstuffs. These pesticide residue tolerances were established in Czecholsovakia in 1965 by order of the chief public health officer of the CSSR in the form of a positive [permitted] list. This list is constantly supplemented and revised on the basis of the latest results of toxicological research.

In Czechoslovakia, the Research Institute of Veterinary Medicine in Brno, and sometimes other research organizations, including the relevant departments of advanced schools, deal with the harmfulness of pesticides for livestock. State veterinary institutes under the management of the national state veterinary offices of the ministries of agriculture and food advance opinions on individual pesticides. For the purposes of veterinary toxicology, pesticides are classified in Czecholsovakia as poisons, substances harmful to health, and substances nonpoisonous to animals. This classification is distinct from the regulations on substances poisonous to humans.

The Research Institute of Forest Management and Hunting in Zbraslav-Strnady and the Research Institute of Forest Management in Zvolen deal with the toxicity of pesticides for game, while the State Veterinary Institute in Jihlava (for the CSR) and the Advanced Veterinary School in Kosice (for the SSR) are in charge of investigation of animal deaths. Pesticide users' responsibilities as regards thesafety of game, as well as the responsibilities of users of hunting lands, have recently been regulated in Public Notice 35/1978 Sb. of the FMZVz [Federal Ministry of Agriculture and Food].

Research on the toxic effects of pesticides on fish is carried out in the CSR by the Research Institute of Fisheries and Hydrobiology in Vodnany and other organizations. The State Veterinary Institute in Ceske Budejovice is in charge of monitoring activities in the CSR; the Central State Veterinary Institute in Bratislava is in charge of monitoring in the SSR. Legal provisions for the protection of fish, natural materia-medica and sources of mineral water for consumption are provided from the viewpoint of the ministries of agriculture and of forestry and water management by Public Notice 35/1978 Sb of FMZVz. This documents specifies the procedure to be taken in investigating the causes of fish kills and in cases of pesticide intoxication. According to CSN [Czechoslovak State Standard] 46 6807, pesticides are divided in terms of the LC_{50} dose into substances highly poisonous to fish, substances poisonous to fish, substances mildly poisonous to fish and substances with little toxicity for fish.

The Research Institute of Beekeeping in Dolau Libcic is in charge of studying the toxicity of pesticides to bees, and proposes classifications of individual pesticides in terms of toxicity to bees. This institute may also act as a monitoring institute, investigating the causes of bee kills on the basis of investigations by the District Veterinary Organization. This monitoring activity is also performed by the State Veterinary Institute in Plzen-Lobzy, the Central State Veterinary Institute in Bratislava, the State Veterinary Institute in Zvolen and the State Veterinary Institute in Kosice. In accordance with Public Notice 35/1978 Sb of the FMZVz, pesticides are classified in terms of their toxicity to bees as poisonous, harmful and relatively harmless. Nonclassified pesticides are those which may present a threat to bees depending on the time or method of application.

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A number of organizations deal with the biological effects of pesticides on plant pests in agriculture, from the research bases of the Czechoslovak Academy of Sciences and the Slovak Academy of Sciences, which are involved in basic research, to research organizations of the Czechoslovak Agricultural Academy and the FMZVz and the monitoring and testing institutes. Coordination and assembling of all data for approval of new pesticides is performed by the quarantine and plant-protection departments of the Central Agricultural Monitoring and Testing Institutes in Brno and Bratislava, which also develop proposals for approval and registration of new pesticides which are discussed by a special commission of the FMZVz. It is only after this procedure that newly approved pesticides receive a registration number and are included in the official List of Approved Substances for Plant Protection, issued annually as a publication of the FMZVz. This listing also includes a classification of preparations according to the existing regulations on poisons, their tixicity to bees and the flammability class in the case of flammable substances. It also specifies the individual permitted types of applications, to which are assigned protective deadlines for the individual crops. Finally, necessary first aid measures are given in coded form.

The approval of new pesticides in Czechoslovakia is now regulated by FMZVz Directive 29/1979 on the testing and approval of pesticides, which specifies in detail the official procedure for testing new preparations which is compulsory for their producers and importers, as well as the further procedures for approval and registration. These measures see to it that the consumers receive truly effective preparations and that products which would have harmful effects on some component of the environment are discarded. This new directive is additional to previous legal provisions, which it supplements in a beneficial way.

Other important legal provisions are ON [Operational Standard] 65 0509, "Packaging and Labeling of Chemical Pesticides," and CSN 46 5891, "Storage of Pesticides," according to which the technical norms and labels for individual pesticides are developed. The texts of these norms and labels must be approved by the chief public health officers of the CSR and SSR and the department of quarantine and plant protection of UKZUZ [Central Agricultural Monitoring and Testing Institute] in Brno or Bratislava before they are put into circulation.

Considerable numbers of other legal provisions and norms at various levels apply to the application of pesticides in agriculture or forestry; all of them see to it that these products are used effectively, safely and economically. The legislative measures in Czechoslovakia dealing with pesticides are at a level, compared with those of other countries, which has been internationally recognized by such organizations as the WHO.

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CZECHOSLOVAKIA

ANTIPOLLUTION MEASURES IN METALLURGY, HEAVY ENGINEERING REVIEWED

Prague HUTNIK in Czech No 2, Feb 81 pp 41-42

[Article by Eng Bohuslav Mouha, Federal Ministry of Metallurgy and Heavy Engineering, Prague: "Protection of Water and Air Purity in the Enterprises of the Federal Ministry of Metallurgy and Heavy Engineering"]

[Text] Within Czechoslovak industry, the Ministry of Metallurgy and Heavy Engineering [FMHTS] has a particularly important role with regard to environmental protection. The enterprises in this ministry produce large quantities of harmful substances of all kinds, but the ministry is also one of the main suppliers of equipment used to trap and eliminate wastes resulting from all other activities of our national economy. Understandably, the overall problem is quite extensive and ramified, and accordingly this article will deal with the problems which the FMHTS must solve as a contributor to water and air pollution.

To provide an overall view we must start by citing some summary data based on anlaysis of nationwide statistics on documented pollution sources. The enterprises of our ministry produce a high percentage of insoluble materials in their waste waters, equal to about 44 percent of the total documented amount. Their share as regards other indices is much lower, for example 7.5 percent of soluble substances and about 1.2 percent of organic pollution. Accordingly, purification of waste waters focuses primarily on the trapping of insolubles, and is producing a steady decrease in their presence in waste waters discharged by plants, accounting for about 4.5 percent of the total quantity of documented sources in Czechoslovakia. In contrast, however, about 53 percent of the soluble substances produced are discharged in waste waters. Even though these figures seem rather high, it should be noted that they are all lower than the national averages.

Comparison of the data for the Czech and Slovak republics indicates that the percentage of pollutants trapped is lower in Slovakia than in the CSR.

These activities indicate the directions and problems to which we should devote the greatest attention if we wish to improve the quality of our streams and protect our subsurface water resources.

The enterprises of the FMHTS have carried out in past years or have currently arranged a number of projects which serve to protect water purity. Some important ones are:

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--the reconstruction or new construction of settling pits in ore-extraction plants such as RB [nonferrous ore mine] Banska Hodrusa, ZB [iron ore mine] Smolik and ZB Rudnany;

--the reconstruction or new construction of stations for neutralizing waste waters from surface treatment of metals, particularly in machine-building operations such as Vihorlat Snina, DH [?Metallurgical Works] Hlohovec, SKODA Plzen and VITKOVICE Ostrava;

--the construction of waste water treatment plants, for example at SES [expansion unknown] Tlmace, RB Banska Stiavnica, Sigma Zavadka, ZD [iron ore mine] Bohumin, and VTZ [pipe Rolling and iron works] Chomutov, and the reconstruction of the water treatment plant at ZSNP ["Slovak National Uprising" Plant] Ziar nad Hronom;

--the use of treated waste waters from the municipal waste water treatment plants in the water supply of VSZ [East Slovak Iron Works] Kosice, and the recirculation of waste waters in NHKG [Klement Gottwald New Metallurgical Works] Ostrava and in Sroubarna Kyjov [Kyjov Screw Plant].

However, implementation of these projects cannot in itself be an objective measure of the success of environmental protection work, since it takes no account of trends in pollutant discharges. Accordingly, in the FMHTS we have introduced an annual review of actual pollutant discharges, although thus far only in terms of indicators which are also used in accordance with existing regulations.

It turns out that since 1976 the quantity of insolubles discharged has fallen by 800 to 900 tons a year, i.e., by 4 to 5 percent of the total amount of pollutants produced by enterprises in our ministry. In contrast, the quantity of biological pollutants has increased. This is a result of the processes used in the industrial waste water treatment plants which have been built, since they lack a biological component.

An important problem with a highly negative effect on the environment is that of petroleum products. In connection with protection of water purity we must not overlook the fact that every year the ministry handles more than 200,000 tons of oil other than heating oil, for example, lubricating oils, preservation oils and the like; they are handled in relatively small quantities in many locations without the requisite water-protection measures, which only increases the danger of contamination.

Accordingly, we are trying to direct greater attention by relevant management to measures which would further decrease the content of extraneous substances in waste water discharged from the current quantity of 2,500 tons a year. The ministry now disposes of more than 1,100 tons of petroleum wastes a year by burning, regeneration or sale.

As regards the purity of the air, our ministry has a considerable part in this kind of pollution. In the CSR it accounts for 13 percent of solid emissions and about 9 percent of gaseous emissions from documented sources. The emissions are produced primarily by plant electrical and heat generating stations. In the SSR the percentage of solid emissions is about 25 percent and that of gaseous emissions about 23 percent. There, in addition to the magnesite industry and nonferrous metallurgy have a part in emissions, so that even their composition is different.

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In the past, the metallurgical and machine-building enterprises succeeded in carrying out a number of projects intended particularly to decrease solid emissions. These included the reconstruction and modernization of dust precipitators in HNKG Ostrava, VSZ Kosice, CAZ [Antonin Zapotocky Iron Works] Vamberk, Chodos Chodov, Prerovske Strojirn [Prerov Machine-Building Plants], and RD [nonferrous ore mine] Pribram, or the installation of new dust-precipitating equipment, e.g., at the Trinec Great October Socialist Revolution Iron Works, VITKOVICE, ZB Rudnany, SKODA Rotava and elsewhere. Some projects have been arranged or are about to begin, for example, in SMZ [Slovak Magnesite Plants] Lubenik, SMZ Jelsava, OFZ [Orava Ferroalloy Works] Istebne and other enterprises. In addition it has been possible to introduce certain measures to decrease gaseous emissions, for example at VSZ Kosice, VTZ Chomutov, NH [New Metallurgical Works] Sered and ZSNP Ziar nad Hronom.

In spite of certain good results, however, it must be admitted that we still have some untapped potential for protection of air purity, to which we must direct our attention. As indicated by summary results, thus far we have been trapping about 90 percent of the solid fly ash produced. We must not be satisfied with this level of effectiveness, for each percentage increase would mean a drop of 20,000 tons a year in emissions. Moreover this is a type of pollution which we are technically capable of trapping and eliminating.

It is apparent that we will have to direct more attention than previously to the regular analysis of pollution trends, in addition to designating the necessary corrective measures, particularly in locations where negative effects are accumulating with respect not only to air purity but to that of water and other components of the environment as well.

If we wish to effect a fundamental turn for the better in pollution trends, we must increase the demands imposed on the preparation and evaluation of all new investment proposals in terms of their effect on environmental protection. Regrettably, we must state that a pro forma approach and inconsistency still persist in the evaluation of negative results of production, the conceptually and technically optimal solutions for environmental protection are not being demanded and new production equipment is being allowed to go into operation without provision for purification or with only temporary measures, which generally become the permanent state of affairs. All levels of management and all bodies which take part in the preparation and approval stages of the investment process must play a more fundamental and positive role in this area.

On the other hand, we also know that considerable untapped potential for protecting the purity of water and air still resides in consistent adherence to technical and operating regulations by the operators, in the performance of necessary repairs, and in the modernization and reconstruction of existing purification equipment. In order to increase workers' initiative in this area, since 1976 the FMHTS has organized a ministry competition among economic production units, collectives and individuals in protecting and creating the environment, which is given financial support. Experience to date indicates that this approach is correct and that positive financial incentives are effective and necessary.

The plans for the Seventh Five-Year Plan period will include considerable resources for protection of the various components of the environment, either specially

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designated or as parts of other programs. Our duty is to prepare and support their optimal utilization for further improvement of the populace's working and living conditions.

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CUBA

CONSERVATION PROJECTS IN JOBO ROSADO FOREST

Havana BOHEMIA in Spanish 16 Jan 81 pp 44-45

[Article by Iliana Garcia Giraldino]

[Text] The only sounds breaking the pervasive silence are whispers of branches swaying in the breeze, songs of birds concealed in the foliage yet revealing their presence, and the muted, ceaseless, background splashing of water falling from on high over rocks into the clear, light blue-green depths of a pool leading to a curious series of caves.

The magnificent natural spectacle overcomes anyone entering the area with the futile hope of capturing a single vivid and continuous image of all the surrounding beauty.

This is another of the marvelous bits of scenery in the Jobo Rosado protected forest area in Yaguajay Municipality, Sancti Spiritus.

The protection of the environment, the flora and fauna, is a priority task for the revolution which inherited the devastated woodlands, resulting from indiscriminate logging, and much damage caused by hunting without any attempt to replace the endangered species.

Consequently, nature conservation areas have been designated wherein the principal criterion is the protection of the environment.

The Jobo Rosado area encompasses some 3,590 caballerias. Its climate is suitable for the development of the indigenous flora and fauna, since its temperature fluctuates between 24.6 and 26.8 degrees C.

The terrain is extremely rough and craggy and adaptable only to perennial vegetation (woods), although some parts can be sown with crops for cattle feeding.

Pheasants for Hunting

Felix Grillo is trained as a fauna technician and works in the Jobo Rosado. He preferred to begin the interview in the grotto-like caves of the conservation area, a description of which serves to lead off the report.

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His deep knowledge of this specialized field enabled Grillo to start by listing the birds and animals with cynegetic (for hunting) traits in the region, including the whiteheaded wild pigeon, as well as the white-winged type, the quail, hutia, deer and doves.

The local fauna also consists of various species of caymans and lizards, various types of pigeons, thick-bodied snakes and other showy inhabitants of the forest.

Grillo made special mention of pheasant breeding, birds remarkable for their delicious meat and their beautifully-colored, bright plumage, which shades through red, blue, green, white and crimson, merging into an infinity of hues.

During the past year, hundreds of these species were set loose in Jobo Rosado and as many again are held in breeding cages established on the hillsides.

Grillo added that deer had also been brought into the area and that they are breeding well. He explained that one of the targets of the plan is to transform a part of the protected zone into a hunting preserve some time in the near future.

Nevertheless, hunting expeditions are already being organized, but these are directed against wild dogs and wildcats which attack the species that are being protected.

According to the estimates prepared, early in 1981 it will become possible to hunt pheasants and in 1986, deer hunting will be legalized, the number of animals which may be shot depending on the increase in the herds.

At the same time, forest maintenance and treatment will be afforded on 100 hectares of land, while firefighting facilities will be established and drinking troughs and fire-wardens observation towers will be built.

Moises Plasencia, administrator for the plan, in referring to their work, explained that it is of vital importance for the protected area. He noted that among the essential tasks are the daily observation of the location of the animals, the development of the flora and fauna and care in ensuring limited access to the zone.

He emphasized that the forest rangers' equipment constitutes a guarantee for compliance with the restrictions established and with the regulations stipulated for conservation of the environment.

Plasencia stressed that the work was not easy; each day the men were called on to cover tens of kilometers over rough ground, sometimes on horseback, sometimes walking, paying attention to every detail to be able to report on the slightest changes detected.

At the same time, the rangers hunt down wild dogs, support the establishment of feeding areas and drinking troughs and the breeding of the species, as well as countering poaching activity.

From the Survey to the Zone

Julio Cesar Molina, head of the Silviculture Office in Sancti Spiritus, made reference to the studies undertaken in the Jobo Rosado zone with a view to its being designated as a protected area.

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He pointed out that in 1978, these surveys were carried out on the basis of an integral analysis from the standpoint of hunting prospects, as well as environmental protection, economic and historic aspects.

The work likewise encompassed listing the existing forest fauna, particularly that suitable for hunting, the composition and quality of the land parcels for hunting purposes, an assessment of the plant types encountered, and soil, water and climate studies.

Molina indicated that the area belongs to the Sancti Spiritus Forestry Enterprise. He also explained that there are two clearly defined seasons: that of drought--lasting from 3 to 23 weeks--and the remainder of the year, which is a rainy period. The annual rainfall fluctuates between 918 and 1,598 millimeters, he said.

The project for the establishment of hunting grounds also involves the building of a hunting lodge, a sort of museum hall, and other facilities.

Describing the work under way in the forests, Molina referred to the chopping down of trees for the good of the forests and to other improvements and the systematic application of treatments for the enrichment of the area.

He added that plans call for the construction of trails or crosscuts of 5 to 7 meters, from north to south and east to west, with a view to making the terrain more orderly and to facilitate access to it.

Another significant aspect is the historical value of the zone, recalling as it does the fact that Maj Camilo Cienfuegos and his troops camped around here.

Memories of the route he took are relived by modern youths who render homage to the heroes of Yaguajay while strengthening their patriotic and revolutionary feelings.

At Jobo Rosado, a natural conservation area is being consolidated. Meantime, a hunting ground is being developed, and the glorious pages of the people's struggle are being relived. In short, the development of the area foretells the future.

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